THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON. *Telephone*—GERRARD 4314 & 4315. *Offices*—423, Strand, London, W.C

No. II. OF VOL. I., 1928. LONDON, SATURDAY, JANUARY 14, 1928 Pp. 120—Price 1s.
No. 5446. Vol. CCXIV. Founded 1823. Registered as a Newspaper. Published Weekly. Annual Subscription. Inland £2 2s. Abroad £2 10s.

OXFORD MEDICAL PUBLICATIONS.

SEE PAGE 5.

JUST PUBLISHED. Large Royal 8vo. Pp. xvi + 110, with 26 plates. Price 25s.; postage 9d.
A STUDY IN
TUBERCLE VIRUS, POLYMORPHISM, &c.
By WILLIAM C. MINCHIN, M.D., Dublin.
Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

Demy 8vo. Pp. 76 with 5 plates. Price 11s. 6d.; postage 6d.
THE SIGNIFICANCE OF THE PHYSICAL CONSTITUTION IN MENTAL DISEASE.
By F. I. WERTHEIMER, M.D., Associate in Psychiatry, Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital and F. E. HESKETH, Charlton Fellow in Medicine, Johns Hopkins University.
Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

Second Edition, Enlarged. Pp. 503 with 33 original plates. Price 12s. 6d.; postage 9d.
PULMONARY TUBERCULOSIS
ITS ETIOLOGY AND TREATMENT.
By DAVID C. MUTHU, M.D., M.R.C.S., L.R.C.P.
"A provocative book, well worthy of study."—BRITISH MED. JL.
Baillière, Tindall & Cox, 7 & 8, Henrietta-st., Covent Garden, W.C.2.

CANCER OF THE BREAST
AND ITS TREATMENT.
By W. SAMPSON HANDLEY, M.S., M.D. Lond., F.R.C.S. Eng.
Second Revised Edition. With 82 Illustrations. 30s. net.
Published for the Middlesex Hosp. Press by John Murray, London.

ON THE BREAST.
By DUNCAN C. L. FITZWILLIAMS, C.M.G., M.D., Ch.M., F.R.C.S. Ed. and Eng.
Royal 8vo. 456 pp. 2 Plates, 166 Illustrations. 30s. net.
LANCET.—"The book is packed with accurate clinical observations and bears evidence throughout of extensive clinical experience and wide reading on the part of the author."
Wm. Heinemann (Medical Books) Ltd., 20, Bedford-street, London, W.C.2.

RADIUM IN CANCER,
AND
THE SURGERY OF ACCESS.
A REVIEW OF MODERN OPERATIVE AND NON-OPERATIVE TECHNIQUES.
By
ARTHUR B. SMITH, M.B., F.R.C.S.E.,
SYDNEY M. SMITH, M.B. Ch.B.Ed.
A brief Illustrated Outline of Recent Advances in the Technique of Treatment of Cancer in General Surgery, Gynecology, Laryngology and Dermatology.
JUST PUBLISHED.
With 18 Illustrations. 56 pages. Price 3s. 6d. net; postage 3d.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

NOW READY. The 84th ANNUAL ISSUE.
2,200 pages. 53,000 names, 11 Pictures of Spas, 30s., postage 1s.
THE MEDICAL DIRECTORY
1928.
With the BRITISH HEALTH RESORTS SECTION.
Edited by R. FORTESCUE FOX, M.D.
"*The present issue fully equals the best of its predecessors, and as an indispensable book of reference will retain the favour it has won in the past.*"—BRITISH MEDICAL JOURNAL, *Dec. 17th, 1927.*
London: J. & A. Churchill, 40 Gloucester Place, Portman Square, W.1

THE GREAT BOOK ON TUMOURS
EWING'S NEOPLASTIC DISEASES
JUST ISSUED—NEW (3rd) EDITION
REVISED AND ENLARGED
See Saunders' Advertisement on Page 3.

SECOND EDITION. 20s. net.
BY HERBERT J. PATERSON,
C.B.E., M.C., M.D. (Cantab.), F.R.C.S.
THE SURGERY OF THE STOMACH:
A Handbook of Diagnosis and Treatment.
"A masterpiece among monographs."—THE PRACTITIONER.
James Nisbet & Co., London, W.

NOW READY. SECOND EDITION. REVISED AND ENLARGED.
NEW EDITION — URINARY SURGERY.
A Handbook for the General Practitioner.
By W. K. IRWIN, M.D., F.R.C.S.,
Assistant Surgeon, St. Paul's Hospital for Genito-Urinary Diseases.
¶ "Clearly written . . . furnishes the practitioner with information of great practical value in his everyday work."—BRIT. MED. JOUR.
¶ "Should be in the possession of every medical man."—GLASGOW MEDICAL JOURNAL.
Crown 8vo. Pp. viii. + 271. Price 10s. 6d. Postage 6d.
Baillière, Tindall & Cox, 8, Henrietta-st., London, W.C.2.

With 16 plates. Demy 8vo. 9s. net. Postage 5d.
PYELOGRAPHY:
ITS HISTORY, TECHNIQUE, USES AND DANGERS.
By ALEX. E. ROCHE, M.A., M.D., M.Ch., F.R.C.S.
With an Introduction by SIR JOHN THOMSON-WALKER, F.R.C.S.
". . . will be of great use . . . . an up-to-date treatise."—B. M. JNL.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

NOW READY. 4/6 net.
THE TREATMENT OF
CHRONIC DEAFNESS.
BY THE ELECTROPHONÖIDE METHOD OF ZUND-BURGUET.
By GEORGE C. CATHCART, M.A., M.D.
Consulting Surgeon to the Throat Hospital, Golden-square.
Oxford University Press, Amen House, London, E.C.4.

J. & A. CHURCHILL'S NEW BOOKS

EDEN & LOCKYER'S GYNÆCOLOGY.
Third Edition. 556 Text-figures, 32 Coloured Plates.
36s. Postage 1s.

A TEXT-BOOK OF BIOCHEMISTRY.
By A. T. CAMERON, D.Sc., F.I.C., F.R.S.C., Professor of Biochemistry, University of Manitoba.
2 Plates and 12 Illustrations. 15s. Postage 6d.

BACTERIOLOGY,
INCLUDING ELEMENTARY HELMINTHOLOGY.
By L. E. H. WHITBY, M.C., M.B., Assist. Pathologist, Middlesex Hospital.
75 Illustrations. 10s. 6d. Postage 6d.

Four New "Recent Advances."
Tropical Medicine. Sir LEONARD ROGERS, C.I.E. 2 Illustrations. 12s. 6d.
Hæmatology. PINEY, A. 4 Coloured Plates. 18 Text-figures. 12s. 6d.
Ophthalmology. DUKE-ELDER, W. S. 4 Coloured Plates. 73 Text-figures. 12s. 6d.
Anatomy. WOOLLARD, H. 4 Coloured Plates. 73 Text-figures. 12s. 6d.

London: J. & A. CHURCHILL, 40, Gloucester Place, Portman Square, W.1

ZŌPLA STRAPPING IS ALWAYS READY FOR USE

It keeps without deterioration and is instantly self-adhesive.

It exerts a powerful grip and does not slip.

On various cloths and felts. WRITE FOR SAMPLES.

Manufacturers of the Original Holland Strapping.

LESLIES LTD., High St., WALTHAMSTOW, LONDON, E.17

Felsol for ASTHMA

THE NEW INTERNAL TREATMENT

One of many Testimonials received from medical men:

"Will you please send me ½-doz. boxes of 'Felsol.' They have achieved more than I expected, and my Asthma patients are more than grateful for the relief they obtain from 'Felsol.'"

—*M.R.C.S., L.R.C.P. (Lond.)*

Literature—Formula and Physician's Sample supplied on request by

BRITISH FELSOL COMPANY, LTD., 29, Red Lion Square, London, W.C. 1.

VALENTINE'S PREPARATION
NUTRIO
PER M.F.
VOLUME 1⅘ OZ.
MEAT JUICE
The result of an Original Process of preparing Meat and extracting its Juice by which the elements of nutrition are obtained in a State ready for immediate absorption.
DIRECTIONS. Dissolve one teaspoonful of the Preparation in three tablespoonfuls of cold or warm water; boiling water changes the character of the preparation

Valentine's Meat-Juice

For **Quieting** the **Irritable Stomach, Aiding Digestion** and **Sustaining** and **Strengthening, Valentine's Meat-Juice** is employed in **Hospital** and **Private Practice** in the treatment of

Diseases of Children.

Dr. Raphael Raimondi, *Consulting Physician of the Montmartre Nurseries, Paris, France:* "I use VALENTINE'S MEAT-JUICE with Nurslings eighteen months to two years old. These very Weak Babies derive great benefit from the use of this tonic preparation. I give it to Debilitated Infants, after they are eighteen months old, in doses of one teaspoonful in thirty grammes of boiled water twice a day, and to be continued for a month."

Park B. Tucker, M. D., *Health Officer, Hamilton, Bermuda:* "I have found VALENTINE'S MEAT-JUICE invaluable for teething children, who readily take and retain it when they refuse everything else. It has also proved very palatable and strengthening in all cases of irritable stomach, especially to that peculiar nausea so often complained of from the abuse of ardent spirits."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,

RICHMOND, VIRGINIA, U. S. A.

A 45

THE LANCET

No. 5446. LONDON, SATURDAY, JANUARY 14, 1928. CCXIV.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

AN ADDRESS on the Education of Medical Officers for Service in the Tropics. By ANDREW BALFOUR, M.D., F.R.C.P. 63

THE FUTURE of Medical Practice in England. By SOMERVILLE HASTINGS, M.S., F.R.C.S. 67

ORIGINAL ARTICLES.

Hæmangioma. By J. J. M. SHAW, M.D., F.R.C.S.—(*Illustrated*) 69

The Curative Action of Hydnocarpates and Iodides in Leprosy. By Sir LEONARD ROGERS, M.D., F.R.S. .. 73

Tuberculin in Pulmonary Tuberculosis with especial reference to Dreyer's Diaplyte. By CECIL BOSANQUET, M.D. 74

The Schick Test and Immunity to Diphtheria. By ROBERT CRUICKSHANK, M.D., D.P.H. .. 76

The Mortality of Operations upon the Enlarged Prostate. By HAROLD EDWARDS, M.B., F.R.C.S. 77

CLINICAL AND LABORATORY NOTES.

A Case of Cerebellar Tumour. By A. GURNEY YATES, M.D., M.R.C.P. 78

A Case Resembling Addison's Disease treated with Pituitary Extract. By EDWARD C. B. IBOTSON, M.D. 79

A Case presenting a Clinical Picture of Congenital Heart Disease with Contrary Pathological Findings. By NOEL F. PEARSON, M.R.C.S. 79

Treatment of Diphtheria Carriers. By PAUL BOUSFIELD, M.R.C.S. 79

MEDICAL SOCIETIES.

Pathological Society of Great Britain and Ireland 80

Liverpool Med. Institution 80

Royal Academy of Medicine in Ireland: Surgery 81

North of England Obstet. and Gynecological Soc. 82

Manchester Med. Soc. 83

Brighton and Sussex Medico-Chir. Soc. 83

REVIEWS AND NOTICES OF BOOKS.

La vaccination préventive contre la tuberculose par le "B.C.G." By A. Calmette and Others.... 84

Diseases of the Throat, Nose and Ear. By Dan McKenzie, M.D., F.R.C.S. 84

Handbook of Diseases of Nose, Throat and Ear. By W. G. Syme, M.D. .. 84

Diseases of the Nose, Throat, and Ear. Edited by A. Logan Turner, M.D., F.R.C.S. 84

Practical Guide to Diseases of the Throat, Nose and Ear. By William Lamb, M.D., C.M. Revised by F. W. Sydenham, M.D. 84

Ultra-violet Rays in the Treatment and Cure of Disease. By Percy Hall, M.R.C.S. 85

Basal Metabolism in Health and Disease. By Eugene F. Dubois, M.D. 85

La métabolisme basal. Par C. Gautier et R. Wolff .. 85

Surgical Diseases of the Gall-bladder, Liver and Pancreas, and their Treatment. By Moses Behrend, M.D., F.A.C.S. 86

Notes on Clinical Laboratory Methods 86

Physical Diagnosis. By Prof. R. E. Cabot, M.D. 86

Chemistry of Familiar Things. By S. S. Sadtler 86

The Earlier Inhabitants of London. By Prof. F. G. Parsons, F.R.C.S., F.S.A. 86

MODERN TECHNIQUE IN TREATMENT.

CCLVIII.—The Treatment of Tuberculous Epididymitis. By R. H. O. ROBINSON, F.R.C.S. 95

PUBLIC HEALTH SERVICES.

Dissatisfaction at Dundee with Panel Practice 102

Infectious Disease in England and Wales 103

THE SERVICES.

Royal Naval Medical Service.—Royal Army Medical Corps.—Indian Medical Service.—Colonial Med. Services.—Deaths in Services .. 103

LEADING ARTICLES.

THE TREATMENT OF THE MALARIAS 87

PROBLEMS OF CEREBELLAR FUNCTION 88

THE OPTICAL PRACTITIONERS BILL 89

THE LONDON FLOODS.... 90

ANNOTATIONS.

The Fate of Mentally Defective Children..... 90

Pulse-Wave Velocity 91

Antenatal Work at a Scottish Maternity 91

Education of the Deaf.... 92

Experiments with B.C.G... 92

Menstruation and Thyroid Function 92

The Correlation of Physical and Mental Excellence.. 93

A Swiss Tour..... 94

Alcohol and the Human Body 94

SPECIAL ARTICLES.

Content of Vitamins A and C in Watercress. By KATHARINE H. COWARD, D.Sc., and P. EGGLETON, M.Sc.—(*Illustrated*)..... 97

Surgical Treatment of Pulmonary Tuberculosis. By Dr. F. HABERLIN .. 99

Paris: Substitutes for Insulin 99

Notes from India: Tropical Medicine Congress..... 100

United States: Leprosy .. 101

Ireland: Work of the Irish Medical Committee 101

Medicine and the Law 101

CORRESPONDENCE.

Gastro-duodenal Ulceration (Dr. J. A. Ryle and Drs. T. Izod Bennett and Alan Moncrieff).... 104

Death Registration and the Fatality-rates of Smallpox (Dr. R. P. Garrow) 105

Aural Systemic Infection (Dr. Ambrose W. Owen) 105

Vesalius and the Inquisition Myth (Dr. G. M. Cullen) 105

The Prevention of Diphtheria (Dr. E. H. R. Harries) 106

Tenterden Paratyphoid Epidemic (Dr. S. Nicol Galbraith)—(*Illustrated*). 106

An Indian Remedy against Dysentery (Mr. T. A. Henry and Mr. H. C. Brown) 108

Commissions in the R.A.M.C. (Fleet-Surg. W. E. Home) 108

An Operation for the Alleviation of Deafness (Sir William Milligan, Mr. Harold Barwell, Sir James Dundas-Grant, Dr. William Wilson) .. 109

OBITUARY.

Lieut.-Col. Alexander Cameron Miller, M.D., F.R.S. Edin. 110

MEDICAL NEWS.

University of London 110

Roy. Coll. Surg. Eng. 110

British Hospital for Children, Belgrade..... 72

Royal London Ophthalmic Hospital 74

Extension of Bradford Municipal Hospital..... 76

Royal Microscopical Society 90

International Bulletin of Military Medicine and Pharmacy..... 95

Royal Med. Benev. Fund.. 96

Conference on Silicosis.... 109

Bethlem Royal Hospital .. 110

Lancaster Isolation Hosp. 110

Order of St. John of Jerusalem 111

Donations and Bequests .. 111

British Empire Cancer Campaign 111

Fellowship of Med. and Post-Grad. Med. Assoc... 111

NOTES, COMMENTS, AND ABSTRACTS.

Recipes for Liver Diet.... 113

Early Medicine in Maryland 113

Birth Control Clinics..... 113

"Prescription Pad" 113

The Sick Rabbit and the Hunter 113

A Year's Work at Livingstone College 114

The Wicker Bugtrap..... 114

Infectious Diseases and Aseptic Nursing Technique 114

Poisoning by Tetrachlorethane..... 114

New Preparations: Prokliman.—Concentrated Fluid Extract of Liver.—Protonuclein and Pancrobilin Pills.—Elixir Sedoval 114

Medical Diary 111

Appointments.—Vacancies 112

Births, Marriages, Deaths.. 112

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY LIMITED.

(FOUNDED 1892)

Registered Office: VICTORY HOUSE, LEICESTER SQUARE, W.C.2.

Telegrams: "MEDICAVERO, WESTRAND, LONDON." *Telephone:* REGENT 0611.

President: Sir JOHN ROSE BRADFORD, K.C.M.G., C.B., C.B.E., M.D., P.R.C.P., F.R.S.
Treasurer and Chairman of Council: C. M. FEGEN, M.R.C.S., L.R.C.P., D.P.H.
Trustees for the Reserve Fund:
Rt. Hon. LORD DAWSON, G.C.V.O., K.C.B., M.D., F.R.C.P. Sir ANTHONY A. BOWLBY, Bart., K.C.B., K.C.M.G., K.C.V.O., F.R.C.S. Sir HARRY BALDWIN, C.V.O., M.R.C.S., L.D.S.

The Society was founded for the following purposes: To protect, support, and safeguard the character and interests of legally qualified Medical and Dental Practitioners; to advise and assist Members of the Society in matters affecting their professional character and interests; and to indemnify them in regard to actions, etc., undertaken on their behalf.

SUBSCRIPTIONS. There is an Entrance Fee of 10s., and an Annual Subscription of £1.

The Invested Funds of the Society exceed £38,100. The Society is fully insured to an unlimited extent against all adverse costs and damages which may be awarded against Members in any action which the Society undertakes on their behalf.

Forms of application for Membership and full particulars may be obtained from the Secretaries at the above address.

THE MUSEUM GALLERIES

Telephone : Gerrard 3932 (STUDIOS) *Telegrams : Museumgal*

53, SHORT'S GARDENS, DRURY LANE, LONDON, W.C. 2

J. B. Corot

THE Museum Galleries have pleasure in advising their subscribers that the third plate of the series of Mezzotint Engravings after Corot, by Mr. H. Scott Bridgwater, entitled "The Dance of the Nymphs," has now been completed and that impressions in colour are being taken from the engraved plate, of which the accompanying is an illustration. The engraving is a perfect replica of the painting, rendered with all the poetry and feeling characteristic of Corot, and the impressions in colour truthfully portray the soft tones and subtle contours of the original. The first two subjects of the series as announced recently are "The Bent Tree" and "Macbeth and the Witches." The edition is strictly limited and the plates will be destroyed after the impressions have been taken off. Please write for full particulars to be sent to you.

To THE MUSEUM GALLERIES (Studios),
53, Short's Gardens, Drury Lane,
London, W.C.2.

Gentlemen,—Please send me illustrated prospectus of your recent issues.

Name .....

Address .....

.....

L. 14/1/28

An Address
ON THE
EDUCATION OF MEDICAL OFFICERS FOR SERVICE IN THE TROPICS.

Delivered at the International Continuation Course of the League of Nations, Nov. 24th, 1927.

BY ANDREW BALFOUR, C.B., C.M.G., M.D. EDIN., F.R.C.P. LOND. & EDIN.,
DIRECTOR, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

PART I.*—TROPICAL MEDICINE.

THERE has recently been published a lecture by an old-time and retired medical officer in a certain British Colony, a lecture which has been acclaimed by a local newspaper as a monument of wisdom. Its leading article commented with special approval on his statement that training medical officers in tropical medicine in this country was a mere waste of time and money. It referred to a two weeks' course, which happily nowhere exists, and showed itself profoundly ignorant on this as on other points, but it is sad to find a medical man with a record of long service in the tropics expressing an opinion so contrary to the teachings and practice of the great Sir Patrick Manson. True he need not be taken seriously, while no doubt there is truth in his contention that the best place to study tropical medicine, at least on the clinical side, is the ward of a good tropical hospital.

Let us, however, consider his futile argument a little in detail. His idea is that it is far better for a medical student after graduation to hold a resident hospital appointment in this country and then to proceed to the tropics, soundly grounded in general medicine and surgery, than for the same graduate to pass directly from his medical school to a school of tropical medicine from which he will fare foreign. No one will deny that, if it can be managed, the newly fledged medico should gain experience either in hospital or in private or dispensary practice before he takes up the study of tropical diseases, but it is well to remember the motto engraved on the clock face of the quadrangle of the medical buildings at the University of Edinburgh—*Ars longa, vita brevis.* Nowadays, after a six years' medical curriculum, a man is anxious to enter as soon as possible upon his life's work and to earn his livelihood, and very often he cannot afford the time necessary to gain what is undoubtedly much-needed experience.

But even supposing the desideratum of our reactionary colonial medical officer is fulfilled, what happens? His medical man, well equipped in ordinary essentials but blissfully ignorant of parasitology and of the symptomatology of tropical maladies—for these subjects are at the best inadequately dealt with in the crowded medical curriculum—proceeds abroad and promptly finds himself in a quandary. He encounters a case of malaria and, having heard something about ague, looks, but looks in vain, for a typical temperature curve and a hot-and-cold stage. Unable to make a proper blood examination, or at least to detect the malaria parasite in the blood, he begins, if he is wise, to doubt his diagnostic powers. If unwise he carries on, and it is at least possible that his patient also carries on to another world, proceeding from the ward feet first to the appointed cemetery.

I have chosen malaria as it is perhaps the most protean of all diseases and may simulate almost any complaint, but conversely other diseases may mimic malaria. Let us suppose that the medical officer encounters a case with rigors and a muddy complexion, a continued temperature, an irritable temper, night sweats, insomnia, and a pain in his right shoulder. There is an old history of malaria and there is nothing very definite about the symptoms. Ten to one he says to himself, "chronic malaria," and exhibits quinine. The patient does not improve. On the contrary, he gets worse, and then one day the doctor finds an ominous fullness in the right hypochondrium and realises, possibly too late, the real nature of the case. He has never before seen an example of hepatic abscess and does not know that it may follow a dysenteric infection so slight that it has been forgotten or perhaps has even passed unnoticed. He is not on the *qui vive* as he should be, he has not thought of amœbic hepatitis and its grave sequela, and, like many another physician, he has been caught napping. He and his patient are fortunate if recourse to emetine at this stage effects a cure. In all probability an operation will be necessary and the patient may swim for his life, as the saying goes.

I might multiply examples, but it is scarcely necessary, for happily there are few nowadays who share the amazing view of the gentleman I have cited. All those with a knowledge of the subject and a sane outlook on life will admit that, not only as regards liver abscess but in a host of other tropical maladies, forewarned is forearmed, and will agree that, with the facilities now existing, it is little short of criminal to send a medical man to practise in the tropics who has not received an adequate training in tropical pathology and parasitology combined with clinical instruction in the so-called diseases of hot climates.

While there can be no dubiety on this score, the best method of securing such adequate training remains a question for very careful consideration. It is true that here in London we believe that the course given by the School of Hygiene and Tropical Medicine meets most requirements very fairly well, and we are encouraged in that belief by the opinions expressed by some of our students now resident abroad and who are in a position to make an authoritative statement on the subject. At the same time, we are far from claiming that our curriculum approaches perfection. We recognise that it does not suit all needs and that it may, before very long, require modification. This is not surprising if we consider those for whom we have to cater. Presumably these do not greatly differ from the classes of students who attend any school of tropical medicine, though here perhaps we have a greater variety.

TYPES OF STUDENTS.

First and foremost there are the medical officers of the Colonial Medical Service, either men or women going abroad for the first time to take up appointments or medical officers who have served in the Colonies or Protectorates and who, for some reason or other, have not been through a course in tropical medicine. There are also those who think it well to take a refresher course when home on leave. Again, there are medical missionaries, some proceeding for the first time to the mission field, others back from it and anxious to be up to date. There are officers of the Indian Medical Service with very considerable practical experience in clinical work, but perhaps a trifle rusty in laboratory technique and not well versed in recent developments. There are medical officers of business companies, most of whom have usually served in the tropics, on plantations or elsewhere. There are medical officers of railways, occasionally there is the ship's surgeon, though he is not nearly so common as he should be, there is the laboratory and research worker anxious to brush up his knowledge or, it may be, acquiring for the first time an extended acquaintance with tropical pathology, entomology, helminthology, and protozoology. Not infrequently there is—to his credit be it spoken—the private practitioner in the tropics who, recognising his deficiencies, seeks to remedy them at his own charge, and, more rarely, the man going out to practise in the tropics who has the sense to appreciate the fact that he is about to be plunged into a new world

* Part II. will appear in a coming issue.

when he gets there and that, both for his own sake and that of his patients, it were well to get a grasp, and a scientific grasp, of certain fundamentals. Lastly we have the man who attends the course because he is interested in the subject and is a seeker after knowledge or because he thinks that some day or other he might like to go abroad and, finding that he has time at his disposal and the necessary funds, takes the opportunity of becoming familiar with one of the most fascinating branches of medical study and incidentally with those ancillary sciences on which tropical medicine is securely based.

You will admit we have plenty of variety here and yet, in the main, we need only consider two groups, those who have had practical experience of the tropics and those to whom the torrid zone is merely a name.

There can be no doubt that it is undesirable to unite these two groups into a single class, although it is true that some men may have learned little from their residence in the tropics, and it is also true that, while a man from the tropics may have good clinical experience, he may find himself at a disadvantage as compared with a student who has just completed his medical curriculum, whose laboratory knowledge is still fairly fresh, and who can also take more kindly to the rigours of a course of study and of its concomitant examinations.

A Short Course of Study.

Still, all things considered, it seems to me that the ideal thing (it is not, of course, always possible to attain the ideal), is to have a short course for those who have never been in the tropics, a course during which essentials can be hammered into them though, mark you, not a mere cram course, for that is fatal. It must be conducted on proper scientific lines and given that academic status which, I venture to think, is the basis of all sound medical training. At the same time it should concentrate on certain cardinal facts which the student simply must know. For example, after some preliminary training in microscopical technique, including instruction in the use of the dark field method, a point of considerable importance, he must be taught afresh how to examine the blood, both fresh and stained, how to recognise normal and abnormal cells, how to do blood counts, how to estimate hæmoglobin, how to avoid fallacies, and how to solve hæmatological puzzles. Blood changes met with in tropical pathology must be expounded to him and then, and not till then, he can turn his attention to malaria from the laboratory standpoint. It is strange how difficult it is to make the average student a competent malariologist in this respect. It is necessary to repeat the lesson again and again, both with the ordinary film and the thick film, but it is essential that he should obtain a thorough grasp of the subject and be in a position to say when what may be a parasite comes into his field of vision, "I am doubtful; therefore it is not malaria." When he reaches that stage there is hope for him.

I do not think, however desirable it may be, that it greatly matters whether or not he can in every case readily distinguish the species of parasite, save that he must, of course, know what a crescent portends, so long as he can recognise the plasmodium whether it be a small ring form, or a half-grown schizont, or a rosette, or a gametocyte. Such recognition must naturally be based on a clear conception of the protozoa, so while he is busy at malaria he must be familiarised with what we may call the elements of protozoology. There must also be a correlation of the blood findings with the clinical aspects of malaria so that, whether or not he can differentiate a quartan from a benign tertian or a malignant parasite, he must know what types of fever the different parasitic infections produce. He must also be thoroughly versed in the pathological anatomy of malaria and understand why and how acute malaria kills and why and how chronic malaria produces cachexia. It is also essential that he understands the relationship of blackwater fever to malaria and realises the blood changes in this condition.

Training in Malaria.

The more I see of training in tropical medicine, the more I delve into the literature, the more am I convinced that a sound knowledge of malaria is half the battle. This is not surprising when one remembers that malaria still remains the most common malady of hot climates and reflects that every year it slays some two million victims.

During his laboratory course on malaria the student should be given that clinical instruction which is all-important. He should see cases, he should take cases, he should, if at all possible, take the blood of cases and, whenever there is an opportunity, attend autopsies. It is far better to teach malaria from a patient than from the lecturer's desk, though, of course, theoretical instruction is required, and such instruction should be fully supplemented by class diagrams and museum specimens. One need not enter into the details of the clinical teaching, but perhaps mention should be made of the necessity of warning the student, as did Sir Patrick Manson, that every patient coming from the tropics with fever is not suffering from malaria, that indeed he very often is not a tropical case at all, and of impressing upon him, not only the protean character of malaria, but the fact that it often exists with, and may mask or be masked by, some other disease. If he gets these truths into his head something will have been accomplished, and if he also is made to realise that in the treatment of malignant malaria "time is of the essence of the contract," in other words, that the sooner the patient gets his quinine the better, then it is probable that some day or other a life will be saved which might otherwise have been lost. I would like to record my opinion that not only should there be clinics in the classroom but that the students should visit the wards. It is important that they should see cases seriously ill from malaria, and it is rarely that such patients can be brought to a classroom. Valuable lessons are furnished by malaria cases shivering and with chattering teeth in the cold stage, flushed and restless in the hot stage, or sweating profusely as the temperature falls. Nowadays, in this country coma will rarely be in evidence but, once seen, malaria coma is not easily forgotten. Those of us who accompanied Manson in his ward visits will recall how valuable were the lessons he taught on cases which could not be exhibited in a lecture theatre.

The instruction will naturally comprise an account of the method of infection, and a short introduction to entomology may be followed by a study of mosquitoes and more especially of the anophelines. For the class of student I have in mind I do not think it is necessary to go very deeply into the subject. I do not believe that the practice of mosquito dissection is essential. What is required is that the student should be able to recognise an adult anopheline, should know the habits of this family of mosquitoes, should be able to recognise anopheline eggs and larvæ, should understand the relationship of the female anopheles to malaria transmission, and should be familiar with those species which have been proved capable of acting as vectors of the malaria parasite. An outline of antimosquito measures to be supplemented during a course in tropical hygiene should also form part of the entomological instruction.

Scheme of Instruction.

It will be seen that, after some preliminary and general instruction, the idea is to take an important disease and to group round it, as it were, the teaching which is required for its full elucidation, considering it, therefore, from the purely clinical side, from the laboratory standpoint, and dealing with its relations to those sciences, hæmatology, protozoology, and entomology, with which it has close connexions.

It seems to me that this is the way to handle a short course of this kind, and there should be no difficulty in following out the notion in the case of all the big

protozoal diseases such as sleeping sickness, leishmaniasis, and, of very great importance, amœbic dysentery. In the same way when we come to the helminthic disorders, substitute helminthology for protozoology, bring in such entomology as is required as, for example, the rôle of the culicines, the simuliidæ, and the culicoides in filariasis, together with other necessary zoological information; snail hosts in schistosomiasis, fish in clonorchiasis, and so forth.

I am inclined to think that a couple of capable teachers, one on the clinical side, one on the laboratory side (and the latter, I admit, will not be easily found), with, of course, assistants and demonstrators, would be sufficient to ground the students properly, keeping, as I say, to essentials but not losing sight of the larger issues and forecasting, as it were, the longer and fuller course to which it is hoped the student will return after a sojourn in the tropics.

I think it likely that the idea will be anathema to some. A helminthologist will say, "I alone can teach helminthology properly," a protozoologist will emit a similar declaration regarding his subject, and an entomologist will probably voice a similar view respecting entomology. Yet for the specific purpose under consideration I doubt if this is true, although I admit there is something in another argument I have heard voiced—namely, that students with little or no knowledge of a subject are best taught by the professor himself while his assistants can, with advantage, take more advanced classes. However, this is scarcely the place to consider ways and means. The nature and scope of the course of study is what concerns us.

As I have said, the laboratory work, be it pathological or bacteriological, can be linked up with the diseases studied but, in addition, there must be some general instruction in methods and principles, for our experience shows that the majority of men coming direct from medical schools have either been inadequately trained in these subjects or have forgotten much that they have learned.

It would, I think, be hopeless to try to give detailed instruction in special subjects like tropical ophthalmology and dermatology, but a certain number of important eye and skin conditions should be selected and the lessons they convey clinically and from the bacteriological, mycological, protozoological, helminthological, and entomological aspects should be impressed upon the student. Naturally, the surgery of the tropics cannot be excluded. If the student knows nothing else he should know a good deal about tropical ulcers and how to treat them, while the surgery of liver abscess, of filariasis, and of vesical calculus should be taught him as far as it can be taught outside the tropic belt. Following this concentrated pabulum, which should be supplied along with ample wall diagrams and museum specimens, including models, which are most helpful, there should come a short course in tropical hygiene, somewhat on the lines of that which I hope to lay before you in my second lecture but lacking those sections which meet especially the needs of the medical officer of health as, for instance, public health administration and organisation and port health work. How much time should be devoted to this intensive training? I believe it could be got into three months without imposing undue hardship on teachers or students, and I very much doubt if anything shorter would serve the purpose, for there must be intervals, tutorial weeks we call them in our full course here, where the student gets a breather, has time to think, to ask questions, to consult the literature, to study in the museum. Otherwise, what Herbert Spencer said in his "Study of Sociology" will assuredly apply to him: "When a man's knowledge is not in order, the more of it he has, the greater will be his confusion."

I take it there would have to be an examination as it is unhappily the only method we at present possess of testing a man's knowledge, but I would be inclined to make it as practical as possible—laboratory work and viva voce. If there was any written part I would see that it took the form of an essay designed to make the student think for himself and more a continuance of the course of teaching than an instrument of torture.

Full Course of Study.

Passing now to the consideration of a training designed on a more liberal scale for those who, as the saying is, have "lived under the palm trees," I think I cannot do better in the first instance than outline the course of study at present pursued at the London School of Hygiene and Tropical Medicine.† This course covers 20 weeks, including the two class examinations, and one of its features is the presence of those tutorial weeks of which mention has already been made. A very considerable time is devoted to pathology and bacteriology. This includes instruction in the use of the microscope and its accessories, the study of the blood, both normal and abnormal, and, amongst other things, the dissection of mosquitoes. I think it should also include the dissection of ticks, or perhaps I should say their examination for spirochætes.

Entomology, protozoology, and helminthology receive due attention, both in the laboratory and classroom. Reference to the school prospectus will show the comparatively large amount of time devoted to clinical demonstrations which are conducted throughout the tutorial weeks and it will be noted that eight hours are occupied by lectures designed to give the student some account of recent advances in tropical medicine. This time, if desired, can to some extent be utilised for a revision prior to examination. A certain amount of biochemistry is included and a few lectures deal with the subject of poisonous plants in the tropics. Visiting lecturers deal with various subjects, amongst them epidemiology, dermatology, ophthalmology, mycology, the surgery of the tropics, and dental surgery from the standpoint of medical men far removed from dental help. Tropical hygiene will be considered separately, together with port and ship hygiene, in my second lecture.

Here, then, we have a curriculum covering a wide field and designed to give the student a fairly comprehensive view of medicine in the tropics. It also should, and I think does, indicate lines of further study. If time could only be found for it I believe a most useful lecture would be one on the literature of the subject dealing with books and journals, although it is true that any student with an inquiring mind and a discerning eye will soon discover from the invaluable *Tropical Diseases Bulletin* on which pages it were best to browse.

It would be wearisome and probably unprofitable to consider details of the teaching under the various headings I have mentioned, but there are a few points which, I think, may be touched upon with advantage.

Some Details of the Curriculum.

Let us take the clinical work first of all. In addition to the lectures on various maladies it is, I am persuaded, of the utmost value to have a discourse on the diagnosis of fevers in the tropics—in other words, an account of a survey which, somewhat in the fashion of a synoptic table, will, by a process of exclusion, eventually enable the physician to come to a correct conclusion so far, of course, as the vagaries of disease and the limitations of clinical and laboratory tests permit of finality being reached. The kind of thing I mean may be found in the "Memoranda on Medical Diseases" published by the War Office, and entitled "Fevers in the East." It is founded on a paper by Colonel D. W. Sutherland, of the Indian Medical Service, which proved most useful to many workers both at the bedside and in the laboratory, and to which students should be referred, being given, of

† A diagram setting out the curriculum is given in the published prospectus and calendar of the Division of Tropical Medicine and Hygiene. The graph shows at a glance the arrangement of the curriculum, including the tutorial weeks, and indicates the allotment of times to the various subjects in which instruction is given.

course, at the same time such new information as may have accumulated. I have already mentioned the usefulness of models. Those supplementing the clinical lectures are specially valuable, and an effort should be made to secure representations of tropical maladies in coloured races as, for example, the excellent series of the Amsterdam School.

Intravenous therapy is nowadays so important in tropical practice that the student should be carefully instructed in the technique. I should think it might be possible to have a model of an arm constructed on which he could practise though, so far as I know, such a desideratum has not yet been evolved. I am inclined to think that one lecture and demonstration on the chemotherapy of tropical diseases would serve a useful purpose, the subject being dealt with on broad lines. There is the question of the care of drugs in the tropics, their deterioration, certain peculiarities of action under tropical conditions as, for instance, the severe effects sometimes produced by ordinary doses of castor oil, the mode of action of some of the newer remedies (why is emetine efficacious in two such widely different conditions as amœbic dysentery and schistosomiasis?), antidotes in what we may call therapeutic poisoning (sodium thiosulphate as a remedy for poisoning by some of the heavy metals), and so forth. A few words also on protein therapy would not be out of place.

In the case of surgery an account of the care and maintenance of surgical equipment, both in the dry and the moist tropics, would certainly appear to be indicated. A man who does not know how to look after rubber utensils is likely to be mulcted heavily in his pocket before he gains the necessary experience.

Some instruction in dental surgery is obviously desirable, considering how often medical men in the tropics are called upon to do dental work.

Here we pay particular attention to dermatology and ophthalmology, and rightly so, for skin diseases and diseases of the eye bulk very largely in tropical practice. They must be taught by specialists in these subjects, and their study well repays the time devoted to them.

The medical officer in the tropics is so often called upon to combine the duties of doctor and nurse that it might be well to give him a few hints on the nursing of certain diseases under tropical conditions. At any rate, he should be referred to the section on this question in Byam and Archibald's "Practice of Medicine in the Tropics."

There is not, perhaps, much to be said about those subjects which are chiefly taught in the laboratory.

The Laboratory Subjects.

Hæmatology has already been mentioned, but I would like here to insist on the necessity of making the student thoroughly familiar with both the healthy and the infected fresh blood film. Occasions will arise, perhaps not infrequently, when the medical officer will have to diagnose a case of fever and yet have no facilities for staining a blood film. Now I know from sad experience that nothing is more difficult than to diagnose accurately the conditions you see in the fresh blood. There are Maragliano bodies which would deceive the very elect, there are not infrequently appearances simulating malaria pigment while, without considerable experience, it takes a courageous and honest man to lay his hand on his heart and say, "This is undoubtedly a small ring form of the malaria parasite." The student should always examine the same blood fresh and stained, and indeed it is not a bad thing, when the scrutiny of the fresh blood is completed, to make a dry film of it, stain it, and examine it. The result is sometimes surprising and an excellent corrective to any tendency towards complacency with one's status as a hæmatologist and parasitologist.

The advanced student may with advantage practise vital staining of the blood. It is of special service in the absence of a dark field when searching for spirochætes.

The pathology of the various diseases will be taught along the usual lines, but I may say that, in a course of this kind where, as a rule, men have for some time been divorced from histological studies, it is very advisable to give them an opportunity of comparing the normal with the abnormal. In the study of malarial tissues this is specially desirable, for pigment is often a difficulty. It is not always an easy matter to distinguish true malarial pigment from other pigments, some of which may have no pathological significance.

Further, I believe that a most interesting and useful dissertation could be framed on fallacies and puzzles in tropical histopathology, nearly if not quite as informative as a similar discourse on blood examination. To cite one case only, it is very necessary that, in Levaditi sections, appearances closely simulating spirochætes should not be mistaken for these parasites.

Where bacteriology is concerned important questions of technique arise. The student must know how to surmount some of the difficulties which face the laboratory worker in the tropics, difficulties due to heat, to dust, to the abundance of aerial moulds, to the deterioration of glassware, and to various other causes which it would take too long to list but which, if he is not warned about them, will assuredly cause him considerable vexation and loss of time.

The importance of mycological infections in the tropics must not be overlooked and, though it may be impossible, as well as unnecessary, to produce mycologists, students should be familiar with the technique for demonstrating fungi, whether in a skin lesion or in a general tissue infection like mycetoma. A few systematic lectures on the tropical mycoses constitute a separate item in the course at this school.

I feel a little diffidence in attempting to say something about entomology, helminthology, and protozoology for, though I am to a certain extent familiar with all three subjects, I have had very little experience in teaching them and they are highly specialised. It is, however, clear that in each case it is necessary to give some general instruction and also, I think, to deal with nomenclature. An explanation of the terms used and of their derivation cannot fail to be helpful. It fixes the meaning in the student's mind and prevents the acquisition of that "parrot" knowledge which is so common and so distressing. In most instances the correct understanding of a scientific term throws light on the reason for its use and is a real aid in classification. Sometimes it is specially illuminating, as in the case of the word "anopheles," even though originally the term may have been employed in a sense different from that which it can now be made to serve.

When it can be arranged, it is well to give practical instruction first of all upon some typical form which will emphasise the character of a group or family. Thus in entomology a study of the cockroach, not in itself a specially harmful creature, but a typical insect of convenient size, serves the purpose. In protozoology the amœba provides a useful preliminary lesson while, if in helminthology no single worm may serve the purpose, yet the Ascaris of the horse may be taken as a type of the Phylum, Nemathelmia, and some large fluke or cestode will afford material for demonstrating the characters of the Phylum, Platyhelmia.

I need say nothing about the detailed teaching of the three subjects save that it should be as practical as possible and must perforce be largely limited to a consideration of insects, worms, and protozoa of real importance in tropical pathology and that, in the case of entomology, it is desirable to direct attention to insects which are destructive to stores, food, and equipment.

Ophidiology, the scientific study of snakes, must have a place in the course but need not be extensively pursued while, in addition to the venomous snakes, some attention should be directed to other noxious animals such as poisonous spiders and centipedes. It is also advantageous for the student to know something about poisonous fish, both those which

inflict poisoned wounds and those which cannot be eaten with impunity.

This leads me to say a word or two about poisonous plants. There can be no doubt that this subject should not be neglected. A few lectures upon those, the ill-effects of which are most commonly encountered in the tropics, will suffice and should be supplemented by the exhibition of specimens either dried or preserved in formalin or spirit.

Epidemiology and Biochemistry.

We include a little epidemiology in the course on tropical medicine, though perhaps it should properly be regarded as part of the hygiene course. It is not easy to teach such a large and complicated subject when time is limited, but I think it should not be altogether ignored. Useful lessons can be taught from a consideration of the geographical distribution of tropical diseases. Thus the fact that kala-azar is unknown in Mauritius and the West Indies may be employed to show how certain diseases are limited to certain places owing to the presence of a specific intermediate host in such localities; thus the existence of at least two varieties of typhus fever in the tropics and subtropics, the one louse-borne, the other of undetermined ætiology, will indicate the necessity for further research in this direction; thus the absence of malaria in certain districts where apparently it should be present will indicate limitations in our present knowledge. Again there is the influence of climatic conditions in such diseases as cholera and small-pox. Yet again the disappearance of yellow fever from certain West Indian islands where no preventive measures have been taken will raise questions of immunity and suggest a solution along the lines of epidemiological inquiry instituted by Topley and Greenwood in the case of mice colonies. I might easily multiply examples but these must serve.

Lastly, there is biochemistry. If, as has been said, "the future is to the biochemist," then certainly the biochemical aspect of tropical medicine cannot be disregarded. Its significance in the deficiency diseases, scurvy, beri-beri, and pellagra must be emphasised. In some parts of the tropics diabetes mellitus is a most important malady and in others nephritis is responsible for much morbidity and mortality. These pathological states can only be properly understood if their biochemical relations are fully appreciated.

Jaundice, as encountered in yellow fever, malaria, and many other conditions, cannot be explained save on a biochemical basis. There are certain tests with which the student ought to be familiar. Some of the more simple he should himself be able to apply if he is to play the part of a scientific physician and diagnose and treat his cases on satisfactory lines. It is not perhaps necessary that he should undergo a laboratory training in such tests, but they can be demonstrated to him and their significance explained, while he can be told where best to look for further information.

Length of Course and Examinations.

I have outlined briefly and imperfectly the kind of curriculum which I believe will benefit the serious student of tropical medicine. It cannot be compressed into less than 19 weeks of arduous study, and it were well if a somewhat longer time could be devoted to it, especially if it is intended to be a diploma course. I take it that, to justify their existence, examinations should be regarded as an integral part of scientific training. Hence I touch upon them here. We have two school examinations, the first on entomology, helminthology, and protozoology, the second concerned with some or all of the other subjects of the curriculum. The first consists of a written and a practical test, the second comprises the answering of set papers, practical work, and oral examination. It ought also to comprise a clinical in the wards or on patients but, owing to the fact that it is followed by a diploma examination and that the amount of clinical material is limited, this has at present most unfortunately to be omitted. The examiners do their best with models, illustrations, and museum specimens, but I admit that here is a hiatus which should, and I hope soon will, disappear. The standard has recently been raised but, even so, we find that only a few students fail and some of them doubtless benefit from the ordeal quite apart from obtaining a certificate of proficiency. I recall one very useful lesson which a diploma examination inculcated. Blood films containing *Acanthocheilonema perstans* were set for microscopical examination. A great many students never thought of making a scrutiny with the low power when they would almost certainly have recognised the infection. They were content to examine with the ordinary high power or the oil immersion. Naturally enough perhaps they failed to come across filariæ, for the number of embryos per film was limited. Had they been content to state that they could find nothing pathological or perhaps to hint at an eosinophilia, no great harm would have been done, but alas, finding nothing, they let their imaginations run riot and some discovered malaria parasites and some trypanosomes, a most serious state of affairs which necessitated the rejection of a considerable number of candidates. Rightly so, for in the tropics such conclusions might easily lead to very serious results. Imagine the Governor of an African colony sent home suffering from an imaginary, incipient sleeping sickness!

Two other points about the course, and I have done. It is, I think, very advisable to take advantage of the presence of any distinguished authority and get him to address the class. This breaks the routine, interests the students in a personality, and gives them an opportunity of hearing a subject discussed, possibly from a particular point of view, by someone who has shed light upon it.

Lastly, the cinematograph film can be used with good effect and so, in the museum, can the graphic and orderly method of exhibit to which tropical medicine lends itself so admirably. Such, then, are the principles and methods of training which seem to me well calculated to fit the medical officer for work in the tropics and which should stand him in good stead even when, far from help, he has to rely upon himself and upon the knowledge he has gained during his period of study. Yet let it be remembered that, even if the method be sound, much depends on the spirit infused into the teaching and on the ideal set before the student. Mere cramming is, as I have said, fatal. There must be an honest attempt at scientific grounding, an effort to interest as well as to instruct, a desire to impart that wider view and loftier aim which is perhaps best expressed in the words of the poet, George Herbert:

> "Who aimeth at the sky
> Shoots higher far than he who means a tree"

The Future
OF
MEDICAL PRACTICE IN ENGLAND.

By SOMERVILLE HASTINGS, M.S. Lond., F.R.C.S. Eng.,
SURGEON IN CHARGE OF THE EAR AND THROAT DEPARTMENT, MIDDLESEX HOSPITAL.

I THINK it will be generally admitted that no profession has seen greater changes during the last half century than our own. During this period the science of medicine has rapidly advanced, and changes in the organisation of the profession have naturally followed. The general practitioner of the past was not only physician, surgeon, apothecary, and accoucher, but also sanitary and public health adviser as well.

But during the last 50 years, at a rapidly increasing rate, one branch of medicine after another has been partially or completely withdrawn from the ken of the general practitioner. Sanitation and public health

are now dealt with exclusively by the medical officer of health; indeed, so little is the average practitioner concerned with preventive medicine that he is almost liable to forget the existence of this most important branch of his science. The diagnosis of notifiable infectious disease is still the business of the general practitioner, but directly removal to the isolation hospital is decided upon, he sees and hears no more of his patient. In some degree the same is true of tuberculosis, excepting that even the diagnosis of this disease takes place to an ever-increasing extent in the tuberculosis dispensaries. Both the diagnosis and treatment of venereal disease are now largely carried out at clinics especially instituted for this purpose, and I have been told by practitioners that they now rarely see a case of venereal disease in its early stages, although, of course, syphilis in its tertiary form is still cropping up fairly frequently. School clinics are now treating a good many of the chronic affections of childhood, previously dealt with by the practitioner or hospital or not at all, and the maternity and child welfare centres, although not originally intended for the treatment of diseased conditions, do in actual practice give treatment to many cases that would otherwise come to the general practitioner. In some districts a very large percentage of children are born within the walls of the municipal maternity hospital. "There are no fewer than 17 departments, spheres, or directions of clinical activity for which provision is made in this sectional way under the auspices of local authorities. Some of these cover an extensive field of medicine."[1] The treatment of the more serious mental diseases has been lost to the practitioner for many years, but few will, I think, regret this loss.

The appalling housing conditions, not only in towns but in many country districts as well, and the increasing complexity of modern methods, make the need for institutional treatment of the sick much greater than previously. Hospital beds are therefore rarely empty, and the poor-law infirmaries are taking more acute and subacute cases, while not a few of them have become staffed and equipped like the large general hospitals. But in very few hospitals or infirmaries does the practitioner retain any contact with his patient when once he has passed within their doors, nor is his doctor informed of the diagnosis made or treatment received when he passes out again.

A Continuing Process.

In these and other ways, then, during the last 40 or 50 years, the scope of the general practitioner has been continually narrowed and confined by public or semi-public provision for the treatment of an increasing number of diseases without his aid. Now this process is bound to continue for two reasons: first, because it is part of the spirit of the age to provide for its needs by collective action; and secondly, because, in spite of some defects with which I will deal later, the public provision for sickness already instituted has undoubtedly made for the general good.

Thirty-five years ago 1 person in 7 died of tuberculosis in England and Wales; to-day only 1 in 14 so dies. During the last 20 years (1905–1925) the infantile mortality-rate has fallen from 128 to 75 for 1000 births. Few people will deny that the public provision made has had a good deal to do with these beneficial results. In connexion with venereal disease the effects of State interference have been even more striking. Between 1920 and 1926 the number of new cases reporting at the clinics fell from 42,805 to 22,550 in the case of syphilis, and from 40,284 to 35,052 in the case of gonorrhœa. These, like many other figures, may possibly be misleading, but no one in active practice can, I think, doubt that syphilis is decreasing. But perhaps the best results of all are to be seen in connexion with the treatment of school-children. To take one disease only, Sir George Newman, as Chief Medical Officer of the Board of Education, in his annual report of 1923, tells us that, as the result of preventive and curative treatment, the percentage of children found on routine inspection in London with defective hearing has, during the last ten years been halved, and that in Cambridge and Exeter the results have been even more striking.

As I said before, I maintain that this process of robbing the general practitioner of clinical material is bound to continue and increase. The hospitals are constantly appealing for further extension of bed capacity, and not only do their long and increasing waiting lists support this appeal, but the Voluntary Hospitals Commission recently recommended that another two million pounds of public money should be given to the voluntary hospitals to equip more beds. The improved facilities for treatment in many poor-law infirmaries are enabling them to take many more acute cases which were previously treated at home, and now the Ministry of Health is inviting representatives of the poor-law and general hospitals to come together to discuss, among other things, whether the medical and surgical staffs of the hospitals cannot undertake the charge of cases in the poor-law infirmaries. This is undoubtedly all to the good from some points of view, but it will, nevertheless, tend to rob the general practitioner of a considerable amount of important and interesting clinical material. And now demands are being made for still further provision for certain classes of persons and certain types of disease. A very strong case can be made for the provision of similar inspection and treatment for the *pre-school* child to that accorded to the child of school age. It is truly pointed out that when children arrive at school for the first time the mischief is often already done and cannot be undone, and their efficiency for the rest of their life is impaired in consequence, and legislation cannot be long delayed in connexion with these young children. On the other hand, an equally strong case can be made for the adolescents between 14 and 16, for whom no public medical provision now exists. These children are, as a rule, earning little, and cannot pay for medical attention privately, and thus the good work done in the schools may readily be made of no account. The maternal mortality at childbirth, amounting to nearly 3000 annually, which has not markedly changed for some 25 years, is causing much public anxiety. What amelioratory measures will ultimately be adopted is not yet clear, but it seems not improbable that the public may demand a vast increase in maternity homes to be staffed exclusively by practitioners of special experience. There is also a demand in some quarters for a national campaign against cancer. Public cancer clinics have been fairly successful abroad, and may at any time be introduced into this country. There is a strong feeling also in some quarters that efficient treatment should be provided for orthopædic cases and for heart disease in children. Further public provision for the prevention and treatment of disease is inevitable, and if carried out in the same way in the future as in the past, is bound to still further rob the general practitioner of much of the variety and interest of his work.

Incoördination of Public Institutions.

Our public provision for the sick may be looked upon as a series of watertight compartments having no communication with each other. If the right sort of person with the right sort of disease happens to fall into the right compartment the treatment obtained is generally good, but there is little to guide him into the right compartment, and nothing to do for him if he happens to fall into the wrong. A good example of the complete lack of coördination between the different schemes for provision for the sick came before my notice recently. Eighty-three of the patients in a large county sanatorium for tuberculosis are children. Of these only three showed definite signs and symptoms of tuberculosis after careful observation lasting over many weeks. Most of the others were classified as "indefinite for observation." But 58 per cent. of these children were found to be suffering

[1] Leading article in Brit. Med. Jour., June 11th, 1927.

from septic tonsils and adenoids. Unfortunately, however, in all but one case all attempts to get these tonsils and adenoids removed have so far failed. "Tuberculosis" these children have been diagnosed, and tuberculosis they must remain for the rest of the chapter, and so they will have to stay at the sanatorium for anything up to 18 months at the cost of the ratepayers.

When the Ministry of Health was created, it was hoped that it would serve to coördinate all the various services dealing with public health. Unfortunately, however, we have had, so far, but one Minister of Health (the first) who could be expected to have any knowledge or experience in health matters, the other Ministers of Health being clearly appointed for their skill in getting houses built or preventing their being built, according to the desire at the moment of the Government in power. Moreover, at best the Ministry of Health can only act as a coördinating agency at the centre, and what is needed is coördination at the periphery as well, and no one can do this effectually but the general practitioner. It seems to me that without him increasing incoördination is bound to occur, as more and more of his patients are taken from him and brought under the care of the State. I look upon the general practitioner as an essential part of the equipment of every family, whether rich or poor, not only to serve as guide, philosopher, and friend, but as registrar of events of medical importance as well. Now if the practitioner is excluded from, and knows nothing of, some of the most important phases in the medical history of his patients, it will be impossible for him to take his part as he should, and I have no doubt that the absence of the natural liaison officer is the main cause of the imperfect success of some of our public health schemes.

Beyond question, such is the increasing complexity of medical science, an even larger amount of treatment will have to be undertaken by specialists, and a good deal of it within the walls of hospitals or similar institutions; but unless the general practitioner's business takes him to these institutions to coöperate with the specialists in the treatment of his patients, he cannot possibly keep his medicine up to date and know what to expect from each specialist line of treatment. From the specialist's point of view also it must be admitted that intimate contact with the man who sees all sides of medical practice is going to lessen that narrowness of outlook which is inseparable from specialisation. In my own experience, at any rate, it is often a much more difficult problem to make a diagnosis and decide on the best line of treatment for a given patient than to actually carry it out. The general practitioner, to whose province this must mainly fall, must, therefore, always be the most important person in the medical hegemony, and any scheme of medical service that fails to take this into account is of necessity foredoomed to failure. Equally, then, from the point of view of the faculty and the public it is essential that the general practitioner should take his proper place in the public medical service of the future.

A Public Medical Service.

The provision by the State of some form of public medical service within the next few years seems to me inevitable. Whenever I have had occasion to speak of it to a lay audience the proposal has been universally applauded, and other people with much greater experience as political speakers have told me the same. We may look upon some form of State medical service, then, as certain within the next few years. Two courses are open to our profession. It may resist the inevitable till the last moment, have some ill-digested and imperfect scheme thrust upon it, like the National Health Insurance Act, or it may profit by the experience of the past and seek to mould public opinion so that when the new order comes the general practitioner may have an honoured place in it as the natural centre around which the whole scheme revolves.

HÆMANGIOMA.

By J. J. M. SHAW, M.D., F.R.C.S. Edin.,
SURGEON, LEITH HOSPITAL; ASSISTANT SURGEON, ROYAL INFIRMARY, EDINBURGH; LATE SURGEON TO QUEEN'S HOSPITAL FOR FACIAL INJURIES, SIDCUP, KENT.

This group of tumours presents many points of interest in ætiology, in clinical manifestation, and in the problems of treatment. They are the commonest tumours of childhood, and are not rare in adult life. In many cases the superficial tissues are involved, but in spite of the consequent facilities for observation the classifications of the past have been in the main purely descriptive, and have embraced overlapping pathological and anatomical features. This confusion is usually increased in two ways. The first is the inclusion under the group name of "hæmangioma" of varicosities and aneurysmal dilatations of ordinary blood-vessels. Adami[1] has insisted on the need for a sharp line of demarcation between vascular enlargements of this type and the true tumours which we are now considering, which arise from unipotent angioblastic cells. The second and subsidiary source of error lies in the use of the term "nævus" in describing the hæmangiomata and melanomata alike. The word should be restricted to the latter group.

The chief purpose of this communication is to discuss a general plan of treatment upon the division of the tumour group into its three histological types, which are also capable of clinical distinction—the capillary, the compact, and the cavernous. This is the classification which has been advanced by Fraser,[2] and his definition of a hæmangioma may be accepted—namely, "a tumour in which there is an actual new formation of vessels, or proliferation of the vessel walls." The definition and classification will be considered more fully after a brief consideration of some of the general features of the condition.

Distribution.

In most cases a definite hereditary factor can be recognised. There is no noticeable difference in incidence among the different races of mankind, although naturally the lesions are less readily observable in dark-skinned peoples. The references in literature are very scanty, but there is reason to believe that the tumours on the whole are rarer among animals than in the human subject. Women are more often affected than men. One half of the body, limbs and trunk, may be affected—hæmangioma unius lateralis. One limb may be involved, or the zone of distribution of one nerve, such as the trigeminal, may be mapped out with varying degrees of accuracy. The smaller tumours, varying from the size of a florin to a minute speck, are common on the face and around the shoulders and buttocks. Several anatomically unrelated tumours may be present in the same individual, and bilateral symmetry is extremely rare. The gradations of size range from a growth which may necessitate the sacrifice of a limb, or, on the face, may render the unfortunate subject a source of misery to himself, or of repulsion to his fellows, to an almost invisible point of discoloration which may disappear spontaneously, or be cured at once by the touch of a fine electro-cautery.

The skin, mucous membrane, subcutaneous tissue, or any of the deeper structures, including bone, may be implicated, either alone or in conjunction. A considerable number of cases have been recorded in the larynx. In the rare instances of involvement of the heart, brain, and lungs the tumour has usually been fatal.

Extension and Retrogression.

The tumour is usually present at birth or becomes visible in early infancy. Its nature may be evident from the outset or it may look bluish, like a recent bruise, the true nature of the condition manifesting itself gradually. It may remain constant in size, may grow, pari passu, with the child, or may extend rapidly. Sometimes a definite infiltration of the

adjacent structures, including bone, takes place at an early stage. In more exceptional cases, and usually at a later age, metastases occur along routes which are at present unknown.[3 4] Retrogression is also shown in a considerable number of cases; thus a

FIG. 1.

Cavernous tumour of lip. Before excision. Note small area on cutaneous surface where previous application of radium had caused tumour to "show through."

small port-wine stain, belonging to the capillary group, may completely disappear. In other cases the regressive change is shown only by the waning of the bright purple or red to a tint which is scarcely distinguishable from the surrounding skin. This process of spontaneous cure is due to a progressive diminution of the blood-supply of the tumour area, which is effected, as Ribbert[5] first demonstrated, by a stenosis of the entering blood-vessels, and also by an increase of fibrous tissue in the stroma, especially at the periphery, where, in tissues other than skin, a definite thin capsule is often found. It is common for this retrogression to accelerate markedly at the period of first or second dentition or at puberty. The clinical features are discussed in great detail in the classical and masterly monograph of John Duncan[6] on the angiomata.

Ætiology and Histopathology.

Ribbert made an exhaustive study of the development of the hæmangiomata, and was the first to describe their origin from angioblastic embryonic tissue. He strongly opposed the view, prevalent in his time, that the tumours arose from pre-existing blood-vessels which had functioned as such. Fraser[2] gives in detail the results of his observations on the histology of the various forms of the hæmangiomata and on their common origin. His new classification is based upon the histopathology, and is simple, precise, and comprehensive. It has the additional advantage that certain broad lines of treatment can be laid down for the three varieties of the tumour, as these are clinically distinguishable. The following brief descriptions are based upon Fraser's work.

Capillary Hæmangiomata.—The first evidence of the formation of the normal vessels of the blood vascular system is in the vascular layer of the embryo, where groups of specialised endothelial cells, the blood island of Pander, proliferate and become finely vacuolated. Fusion between contiguous groups takes place, their fine channels become united, and give rise to a delicate capillary network which, in time, forms the capillaries and lining of the larger blood-vessels as a continuous blood circulatory system. The origin of the hæmangiomata can be traced to the failure of certain of the cells, or cell groups, to establish contact with the developing network. Such cells proliferate and become vacuolated, as do the others, but in their disjoined state do not proceed beyond the stage of a mesh of minute irregular blind channels, through which the blood of the general circulation does not pass. The lumina of the tumour of this type are either empty or contain a few immature or degenerate corpuscular elements. Such is the capillary hæmangioma (Fig. 5A), which may grow rapidly as a tumour and may vary in size, as seen superficially, from the minute "araneus" or speck of looped capillaries on the face, to the large, flat, port-wine stain. The so-called "de Morgan" spots are probably "rests" of such endothelial cells which do not proliferate until late in life.

Compact Hæmangiomata.—Proliferation may become more intense in the cells which form the walls of the fine pseudo-capillaries, and give rise to perivascular and endovascular thickening. The result is the formation of a solid mass of cells in which the lumina are no longer visible. Such is the compact hæmangioma (Fig. 5B). This is usually a solid subcutaneous swelling, closely resembling a lipoma.

Cavernous Hæmangiomata.—The third type results from the establishment of a connexion between the general circulation and the fine channels of the capillary type of tumour. The capillary tubules become distended, the walls break down further, and pools and channels of normal blood are found in the irregular spaces which are still lined by endothelium. Many of the spaces are culs-de-sac, in which the circulation is sluggish, and thrombosis may take place, especially in the limbs. Such is the cavernous hæmangioma (Fig. 5C), which may be found at birth or may affect a capillary tumour of long standing, the change being initiated in some instances by trauma or ulceration.

FIG. 3.

Hæmangioma unius lateras. Capillary type on abdomen where it is arrested abruptly at midline. Large breaking down areas of endothelial tissue, and endothelial lined spaces containing thrombi in limbs. Excision of protuberant masses on leg. Further treatment deferred until after puberty in expectation of some regression.

The delicate stroma of the capillary and compact tumours receives a septal blood-supply from normal vessels which are only slightly increased in number and size. The entrant vessels in the cavernous type are usually increased in both respects, but not markedly. Thus, while an incision within the cavernous tumour zone may cause an alarming diffuse hæmorrhage, an approach to the tumour from without, with exposure and double ligature of

the vessels before they enter the tumour mass, occasions only slightly more hæmorrhage than the extirpation of a fibroma or other simple tumour. The exposure of the entering vessels is readily effected in most situations by traction upon the tumour mass after the superficial circumferential incision. The entering vessels can then be picked up individually, as are the intercostal branches in removal of the pectoral muscle, in the operation for carcinoma of the breast.

If the surface of a cavernous angioma becomes broken a persistent chronic ulceration, with occasional severe hæmorrhage, may be set up, and an epithelioma may develop in such an area of chronic irritation. Rarely a true infiltrating endothelioma, or even a sarcoma, may appear at the site of a hæmangioma. A cavernous tumour in a viscus such as the liver is well known; it consists of a sponge-like reticulum, in the spaces of which normal blood circulates. When the skin and subcutaneous tissues are involved, the "mixed angioma" of the old classifications, the altered skin is raised, bluish, and nodular, and bleeds very freely when incised. When a cavernous tumour is entirely subcutaneous, or there is a subcutaneous spread from an area in which the skin is also involved, there is an elevation of the skin, combined with sagging of the part as a whole, and on pressure the part seems abnormally soft. Occasionally a diffuse pulsation can be felt.

FIG. 2.

Cavernous hæmangioma of face. A, Condition prior to operation, showing several nodules at which hæmorrhage had occurred. B, Showing result of complete excision and repair by forehead pedicle flap. Searing of lower eyelid by cautery.

Treatment.

The age of the patient, the situation, size and type of the tumour, the degree of disablement or disfigurement, and the economic and psychic effects on the particular individual, must all be considered. Since spontaneous arrest and cure may occur up to the period of adolescence, it is inadvisable to embark upon drastic treatment for the larger tumours in children, unless they are extending rapidly or are in a situation, such as the orbital region, in which even slight extension may be dangerous. The solid tumours do not retrogress, and therefore the question of age does not arise. Experience shows that complete removal, with plastic repair if necessary, gives the most certain and satisfactory result in the type of case for which it is recommended below, and in the majority of cases it has been found that the patients prefer a procedure which will remove the tumour within a specified brief time, instead of a long series of applications which may have to be continued over several months or years. In the hands of some dermatologists radium has been too freely used and too highly extolled.

Capillary Type.—In the capillary subdivision fall the small araneus, the flat port-wine stain of all sizes, and the raised, soft, brightly coloured "raspberry" tumour, or "mother's mark," usually about the size of a shilling, and often present at birth.

The "araneus," which resembles a small-bodied spider, can be readily dispelled by touching the central point with a fine electro-cautery, or with the blunt end of an ordinary sewing needle at dull red heat. This may be done without anæsthesia, or a few minims of novocaine may be injected subcutaneously.

The flat capillary tumour of all sizes is best treated by radium, which is applied as a flat plaque. Treatment may take several years, and should always be carried out by an expert, as the dosage must be very carefully estimated, and the margin of error in concentration of the rays is a very fine one. An underdose is ineffectual, and an overdose produces a severe inflammatory reaction followed by scarring and an unsightly and permanent distension of some of the blood-vessels. Some skins appear to be unsuitable for radium application, and show a brownish discoloration below the atrophic skin, from a deposition of hæmatoidin. In such cases excision with plastic repair may be employed. In a suitable case there is a satisfactory blanching of the affected area, and although the skin remains in a permanently atrophied condition, the total improvement may be very considerable.

The small raised tumour, which is chiefly capillary, is best treated by the application of carbon dioxide snow for a period not exceeding 20 seconds. This is the method of election in children, and if properly and smoothly applied leaves practically no scar. On parts other than the face, where several applications of snow would be required, excision is to be preferred. Occasionally there is a considerable cavernous element in the structure of these cases, and carbon dioxide snow is ineffectual; here again excision must be resorted to. The subcutaneous injection of alcohol, while the tumour is emptied of blood by digital pressure, is recommended by some continental authors. It admittedly involves some risk of sloughing, and possesses no advantages over snow application or excision.

FIG. 4.

Massive cavernous condition of tongue, lower lip, and left side of face. Had apparently almost succumbed after electrolysis of tongue in childhood. Suffocation averted by tracheotomy. General health excellent; steady worker in saw-mill. Treatment not desired nor recommended.

Compact Type.—The compact subcutaneous tumour should always be excised. A distension of the superficial capillaries is sometimes found at the most

elevated part of the tumour; it is usually possible to include this small area of affected skin with the underlying tumour in the process of excision. The capsule, where it exists, is too thin to permit of any shelling-out process, but the compact mass can easily be dissected from the surrounding connective tissue without troublesome hæmorrhage.

Cavernous Type.—The cavernous tumours present the greatest difficulty in treatment. They are never confined to the skin, and any application of radium which would act upon the endothelium of the deeper blood spaces would involve grave risk to the delicate overlying skin, however careful the screening. The insertion of radium "needles" into the substance of the tumour is liable to produce a very uneven result in both colour and contour, and may need months of treatment. Electrolysis has been virtually abandoned, partly because of the unevenness and uncertainty of its results, and partly because of the dangerous swelling which may attend its use in ituations in which the method would be of the greatest value, such as the tongue, lips, and buccal mucosa.

In general, excision of the whole substance of the tumour, followed by suture or plastic repair, is by far the most satisfactory form of treatment for the localised swelling, and for the diffuse subcutaneous hæmangioma with localised masses of protuberant endothelial tissue, which is met with chiefly in the limbs. The line of incision must run outside the periphery of the tumour in all aspects, except in situations such as the lip, where the application of small clamps on both sides of the affected area can permit a partial gradual excision. In this removal by stages the fibrosis of the line of repair in the tumour tends to carry on the reduction of size for a considerable time. Cavernous tumours of the tongue present a difficult problem. Free excision is not to be advised for large lesions on account of the mutilation of the organ. Small tumours, however, should be dealt with by wedge exsection. When the whole or half of the tongue is involved, treatment should be withheld, if possible, until after puberty, to allow time for retrogression. The author has recently seen a case of this type in a girl of 11, in which an attack of scarlatina followed by pneumonia appeared to initiate reduction in size. If treatment is imperative at any age, on account of repeated hæmorrhage or gross disorder of speech or mastication, radium needling should be tried, as irregularity of contour is of secondary importance to the reduction in bulk of the tongue. The possible need for tracheotomy should be mentioned beforehand, and the patient should be watched carefully while the needles are in situ and for 48 hours after their withdrawal.

No attempt can be made here to describe the methods of plastic repair for the various regions. Healthy skin should never be sacrificed, even if it overlies an infiltrating subcutaneous tumour. Where primary suture after excision is not possible, the gap may be filled in by local flaps or advancements, but in many facial cases it is necessary to use pedicled flaps, preferably from the forehead.

Summary.

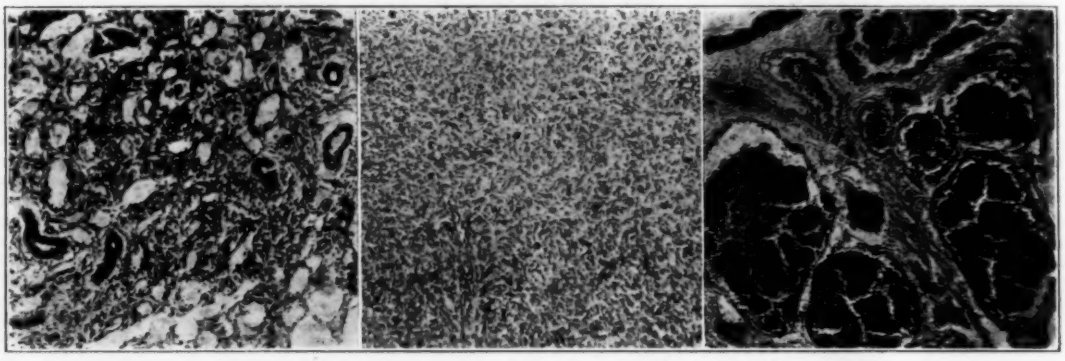
A hæmangioma arises from angioblastic endothelial cells in the vascular layer of the embryo, which remain disjoined, when other similar cell-groups link up to form the blood-vascular system. These small masses proliferate and become vacuolated, giving the histological appearance of stunted blind capillaries which contain no blood. This is the capillary type of tumour. Further proliferation of the endothelial cells which form the walls of these fine channels produces the solid compact hæmangioma. The cavernous hæmangioma develops when a connexion is established between the blood-vascular system and the previously closed delicate channels of the capillary tumour. Normal blood then flows through them and ultimately produces marked distension.

The three types are clinically distinguishable, but the structural forms may be intermingled in certain tumours. Usually there is marked predominance of one type.

The treatment of the capillary type is by radium or carbon dioxide snow. The compact and cavernous tumours should be excised.

The untouched photographs (Figs. 1, 2, and 3) which accompany this article have been selected with a view to showing types suitable for excision, and one case (Fig. 4) of very large tumour in which treatment was neither desired nor advised.

FIG. 5.



Sections of A, capillary; B, compact; and C, cavernous hæmangioma.

References.

1. McFarland, J.: Surgical Pathology, p. 360.
2. Fraser, John: Hæmangioma Group of Endotheliоblastomata, Brit. Jour. Surg., 1919-20, vii., 335.
3. Ewing, J.: Neoplastic Diseases, p. 228.
4. Borrmann, Robert: Beit. zur Path. Anat., 1907, xl., 372.
5. Ribbert, M. W. H.: Virchow Archiv, 1898, p. 381.
6. Duncan, John: Angioma and other Papers, published 1900.

BRITISH HOSPITAL FOR CHILDREN, BELGRADE.—This institution is in danger of being closed for lack of financial support. It was opened eight years ago and has been under the control of Dr. Katherine MacPhail, who originally went out to Serbia under Dr. Elsie Inglis during the war. In that period, it is stated by the committee, which is appealing for help, it has "tended, and in many cases rescued from death or from being maimed for life, some 60,000 children whose fathers and mothers were victims of the war." All this was done in spite of the fact that very little help has been forthcoming beyond that generously given by the Serbian Government. At least £3000 a year is needed to maintain the hospital on its present footing.

THE CURATIVE ACTION OF HYDNOCARPATES AND IODIDES IN LEPROSY.

By Sir LEONARD ROGERS, C.I.E., M.D., F.R.C.P. Lond., F.R.S.,

I.M.S. RET.; PHYSICIAN AND LECTURER TO THE LONDON SCHOOL OF TROPICAL MEDICINE.

Dr. E. Muir, leprosy research worker in the Calcutta School of Tropical Medicine, has recently published two important papers, one on improvements in the administration of sodium hydnocarpate[1] and the other on the value of iodides and antimony in advanced cases of leprosy[2]; the time, therefore, appears opportune for a brief review of the present position of the treatment. The old Indian remedy, chaulmoogra oil, has long been used orally, but only slightly retards the disease owing to its irritating effect on the stomach. Recently, however, E. A. O. Travers found that fresh *Hydnocarpus anthelmintica* nuts are well borne and have, he thinks, a therapeutic value when given by the mouth. In 1914 Victor G. Heiser[3] reported promising results at Culion, in the Philippines, with intramuscular injections of the Mercado mixture containing chaulmoogra oil, but H. W. Wade and C. B. Lara[4] have recently reported that most of the cases subsequently relapsed, and this "decidedly heroic" method was abandoned. In a series of papers[5 6 7] published between 1916 and 1921 the present writer showed the value of subcutaneous and intravenous injections of the soluble sodium salts of gynocardic and hydnocarpic acids obtained from chaulmoogra oils, preferably that of *Hydnocarpus wightiana*. He also established the important fact that they produced specific reactions with slight fever and local swelling, accompanied by breaking up of vast numbers of the lepra bacilli, and followed by absorption of the thickened tissues and eventual disappearance of the causative organisms. There was apparent cure in no less than 40 per cent. of cases, which were much earlier than the general run of asylum ones. This effective method had the disadvantage of causing blocking of the veins in some cases by a local adhesive phlebitis; this limited its use, especially in women and children, and led to the successful introduction by A. E. Dean and H. Hollmann in Honolulu, in 1918, of intramuscular injections of the ethyl esters in place of the sodium salts and the adoption of this treatment in the Philippines and elsewhere. As recently as 1925, however, G. A. Perkins[8] pointed out that the sodium salts first used by me "in the effective treatment of a large group of cases" are more active than the ethyl esters; their use at the present time is restricted by the gradual obstruction of the veins which they cause.

"*Alepol*," *a New Non-irritating Sodium Hydnocarpate Suitable for Intravenous Use.*

As my own experience leads me to agree with Dr. Perkins that sodium hydnocarpate is a more effective preparation than the ethyl esters, I have been working during the past two years to overcome the disadvantages of the former. At the Royal Society of Medicine in February last[4] I announced that success had been obtained, with the help of Mr. T. A. Henry, D.Sc., Director of the Wellcome Chemical Research Laboratory. After making several preparations he has obtained the sodium salts of selected fractions of the fatty acids of *H. wightiana* oil, which are quite painless when given in a 3 per cent. solution subcutaneously and intramuscularly, and could also be administered in a 1 per cent. solution intravenously with good results. I also enlisted the help of Dr. Muir, who has got over the difficulty of injecting 1 and 2 per cent. solutions intravenously by the simple expedient of drawing up about an equal quantity of blood into the dose, mixing by rotating the syringe on its long axis with the needle in the vein and injecting the whole. The new preparation (which Messrs. Burroughs and Wellcome have put on the market under the name of Alepol) costs one-twentieth of the price per dose of a good ethyl ester, as well as being more active; the powdered drug, ready for making up 2 or 3 per cent. solutions, with 0·5 per cent. carbolic acid, can be supplied at a cost allowing of two full 5 c.cm. doses being given twice a week for a whole year for just over 2*s*. In view of *H. anthelmintica* being less irritating to the stomach than *H. wightiana*, I asked Dr. Muir to make some sodium hydnocarpate from the former for intravenous use, and he has found this preparation to be quite unirritating to the veins. Thus we now have a very cheap, active, painless and specific remedy, which produces reactions in leprous tissues with extensive destruction of the causative bacilli.

At the Royal Society of Medicine discussion Muir,[4] Wade, and Lara (see THE LANCET, 1927, i., 597) recorded over 1000 recoveries, showed that nearly every early case can be "cured" (Muir's own word), and that some 15 to 20 per cent. of advanced cases of eight years' average duration could also be cleared up. I pointed out in that discussion that the power to clear up even the early cases would allow a great reduction of leprosy in a single decade, wherever the simple plan of examining all the household and close contacts of newly discovered lepers every six months for five years could be carried out, as some 80 per cent. of possible new infections would thus be detected and cleared up in the early uninfective stage, and that proportion of foci of infection stamped out. After a second five years' campaign very few would remain. This plan should be feasible among all European and other educated races. What is now wanted is a more effective treatment for advanced cases, and Dr. Muir's second paper on iodides in leprosy promises a further advance in that direction.

History of the Use of Iodides in Leprosy.

Iodides have long been used in leprosy, but nearly all workers agreed that they are harmful on account of the very severe febrile and local reactions they produce, often with the appearance of new lesions. They are, however, of diagnostic value, as they induce the appearance of lepra bacilli in the nasal discharge when these were previously absent. Thus the Norwegian authorities, Danielssen and Boeck, in their classical description of leprosy of 1848, state that the French physician, Biett, was the first to use iodine preparations internally in leprosy, but that they themselves had found that they produced severe reactions followed by only temporary diminution of the nodules. Hansen, in his book on leprosy (1895), states that Danielssen "soon learned what a very dangerous remedy it (potassium iodide) was in this disease," but that he used it as a test of apparent cure, as he considered that if it produced no development of new eruptions the cure was complete. In 1908 E. Marchoux and G. Bourret[9] recorded the interesting observation that during the reactions produced by iodides, both the lepra bacilli discharged from the nose and those in nodules which softened or suppurated as a result of the reactions, showed extensive breaking up and loss of acid-fastness. This is precisely what I found in nodules showing similar reactions after intravenous sodium hydnocarpates, and it led me to persevere with the treatment. The French writers mention that nearly all previous authorities, except Siebart, regarded the iodide reactions as harmful, but they noted improvement and regarded them as specific. Currie, Clegg, and Hollmann,[10] in a valuable review of the literature on leprosy treatment, record that in their hands the inhalation by a leper of 15 to 20 minims of ethyl iodide invariably produced severe reactions within a few hours.

A study of the literature led me to think that the close similarity between the reactions and bacillary destruction produced by iodides and hydnocarpates respectively indicated further trials of the former, in spite of the severity of the reactions they produced. I was strengthened in this belief by noting the greatest

improvement I had ever seen in two advanced cases, in which a very few small doses of sodium hydnocarpate intravenously had produced very severe local reactions, accompanied by debilitating fever of over a month's duration. Yet, without any further injections, the patients continued to improve for a year, and one of them completely lost his extensive lesions and fully recovered his health. In these exceptional cases the toxins set free by the dissolution of immense numbers of lepra bacilli had evidently been followed by the development of curative antigens in the system with ultimate great improvement, or even apparent cure.

I forwarded to Dr. Muir all the abstracts I had made on the treatment of leprosy during two years' study of the literature, and in a letter dated Sept. 29th, 1922, I stated that I would send him "a preliminary account of the history of the methods of treatment, which will bring out the interesting fact that every method, including various vaccines, tuberculin, nastin, iodides, &c., which gave any definite results caused reactions with breaking down of the nodules and of the bacilli." Dr. Muir commenced trials of iodides in 1923, as he informed me in a recent letter, sending early information of the success of his four years' work, which he has just reported.[2] The most important part of this is his discovery that prolonged febrile reactions may be controlled by intravenous injections of tartar emetic, and painful nerve symptoms by subcutaneous injection of adrenalin, for this enables the drug to be given with great advantage, even in many advanced cases of leprosy. Equally important is his conclusion that, when very large doses of potassium iodide can be taken repeatedly without reaction, the case is probably completely cured; this confirms the opinion of Danielssen. Muir rightly warns against the use of this very active treatment by those with little experience of the disease, or anywhere except in institutions with full control and facilities for careful observation; the results in the large series of cases he is now treating with iodides will be awaited with interest.

Thanks to Dr. Muir's kindness in sending me an advance copy of his paper, I have been able to use potassium iodide in patients who had almost cleared up under the new sodium hydnocarpate, and I have found it of undoubted value in producing mild reactions with further improvement in such cases. In two others which I looked on as practically cured no reactions have occurred; this confirms their recovery. I therefore think that the drug may be safely used by experienced workers in cases in which all thickening of the tissues has already cleared up under alepol as the few remaining bacilli will not induce harmful reactions; also as a test of complete recovery. It may thus be used to supplement treatment by alepol and other active chaulmoogra oil preparations, until Dr. Muir's further experience enables him to lay down safe rules for its more general exhibition in active advanced cases, in which iodides may be a two-edged weapon unless used with great care. When we recall that only a decade ago we could do so little for the disease, the present position of the treatment holds out great hopes for the leper.

References.

1. Ind. Jour. Med. Research, 1927, xv., 501.
2. Ibid., p. 507.
3. U.S. Public Health Reports, 1914, xxix., 2763.
4. Proc. Roy. Soc. Med. (Sections of Tropical Diseases and Parasit., &c.), 1927, xx., 121, 149.
5. Brit. Med. Jour., 1916, ii., 550.
6. Ind. Jour. Med. Research, 1917, v., 277.
7. Practitioner, 1921, cvii., 77.
8. Jour. Philip. Islands Med. Assoc., 1925, v., 369.
9. Bull. Soc. Path. Exot., 1908, i., 347.
10. Lepra, 1913, xiii., 25.

ROYAL LONDON OPHTHALMIC HOSPITAL.—An extra Gifford Edmonds prize of £100 for the best essay on a subject dealing with ophthalmology involving original work will be awarded in December, 1929. The subject for this essay is Central Scotoma: its Pathology and Clinical Significance. Particulars may be had from the Secretary, Moorfields Eye Hospital, City-road, London, E.C. 1. The subject for the current essay to be sent in by December, 1928, is the Causation and Differential Diagnosis of Proptosis.

A NOTE ON THE USE OF TUBERCULIN IN PULMONARY TUBERCULOSIS,

WITH ESPECIAL REFERENCE TO DREYER'S DIAPLYTE.

BY W. CECIL BOSANQUET, M.D. OXF., F.R.C.P. LOND.,
PHYSICIAN TO THE BROMPTON HOSPITAL, LONDON.

IT can hardly be denied that the introduction of tuberculin by Koch as a specific remedy for tuberculous affections was followed by an enormous balance of disastrous results so far as the subjects of pulmonary tuberculosis were concerned, or that subsequent attempts to revive the use of these preparations as a routine or even a frequent mode of treatment in cases of consumption have been not merely unsuccessful but actively harmful. In consequence the employment of tuberculin in pulmonary tuberculosis appears to have been largely abandoned. It is possible that the pendulum of opinion may have swung too far. Personally, I am inclined to believe that there are a few cases of chronic phthisis in which tuberculin is capable of inducing some degree of benefit. It is clearly desirable not to neglect the smallest aid that is available in a disease against which our weapons of defence are so extremely limited.

Our knowledge of the active principle at work in the various preparations of tuberculin is meagre or entirely lacking. I am inclined to think that the effective body is the same in all forms of tuberculin which have any real activity, the different preparations varying in dilution and in the presence of various extraneous foreign materials, which may complicate the results obtained without increasing the benefit to the patient. I can only speak from experience of Koch's TR and his *bazillenemulsion*, BE, among the old preparations; while recently I have used Dreyer's diaplyte vaccine, which for brevity I will call TD. This paper is written mainly with a view to calling attention to the possible value of this last form of tuberculin.

Since tuberculin is of the nature of a vaccine, we cannot hope to produce good results by its use in patients whose disease is actively progressive, and who are therefore probably suffering already from an overdose of the very poison which we are injecting. Nor is it theoretically likely that such treatment will do good in cases of long-standing and advanced disease, with emaciation and cachexia which have destroyed or gravely impaired the patients' powers of reacting to a toxin by forming increased immunising bodies and so gaining enhanced resistance. As a general principle, therefore, tuberculin should not be administered to patients who exhibit high degrees of pyrexia or who are greatly debilitated. The latter should certainly first undergo a course of hygienic treatment in order to increase their powers of response. A case mentioned below seems to indicate that even pyrexia of high degree is not necessarily an absolute bar to the use of tuberculin, but the vaccine must only be given in such cases with extreme caution. Also it should be an absolute rule of treatment to "let well alone" in early cases. If a patient is doing well on simple rest and hygienic management, or on any other special regimen, we should not, either from impatience or from a light-hearted desire to try some new method, interfere with the process of natural recovery, by the use of tuberculin, artificial pneumothorax, or any other drastic remedy. It is very easy to upset the balance of reparative forces by any kind of shock or disturbance, and it is too often very difficult to regain ground so lost.

The types of case in which I believe that tuberculin may sometimes be of use are: (1) patients who exhibit a persistent mild pyrexia in spite of continued rest in bed; (2) those who have no fever while resting, but suffer repeatedly from a slight return of pyrexia on rising and moving about; and (3) early

cases with slight laryngeal involvement. Prophylactic injections of tuberculin might also perhaps be given advantageously to delicate subjects with bad family histories. I have only had the opportunity of using TD in one such patient, a lad whose mother and sister had recently died with subacute pulmonary tubercle, and whose other sister had recently developed signs of the disease. He has so far (over two years) remained free from symptoms.

Dosage and Technique.

The dose should be almost infinitesimal at first, and should be increased very slowly under careful observation of the temperature chart and of the patient's weight and general condition. A certain psychical effect is often produced by the administration of any new remedy, and the illusory improvement which sometimes appears at first must be discounted. On the other hand, if a patient feels depressed or in any way less well after each injection, I should attach some importance to his sensations and diminish or discontinue the doses. The initial dose which I employ, using Koch's tuberculin, is 1/100,000 mg. of solid bacterial content, followed by 1/75,000, 1/50,000 mg., and so on in a febrile case, raising the doses more quickly in the absence of fever and in early cases. Dreyer's tuberculin is more concentrated, as the inert fatty matter has been removed and the solid material left is theoretically all active substance. I use an initial dose of 1/200,000 mg., and this can be raised slowly or quickly in accordance with the type of patient. In the series of observations mentioned below an initial dose of 1/75,000 mg. was employed in advanced cases and as much as 1/2000 in early disease, without ill-effects; but I have seen instances in which the smaller amount gave rise to marked febrile reaction. When a satisfactory dose has been reached, giving normal temperature and general improvement, it is best to repeat it, at all events for several ensuing injections, as it appears doubtful whether any advantage is gained by raising the dose indefinitely. It has been suggested, probably with truth, that a patient may acquire a tolerance for injected tuberculin even in large amounts and yet not gain increased resistance to the disease from which he is suffering. There seems no reason for aiming at the administration of large quantities of the vaccine.

The first trial injections may be given at intervals of five or seven days. Afterwards the intervals may be determined by the effects produced. Thus, when an injection causes a preliminary fall of temperature, which tends to rise again some days later, the time of such rise may indicate the need for another dose. After an injection an immediate rise of temperature of more than 1° F. usually suggests a diminution of the dose given; in any case it contraindicates any increase. The patient should remain in bed, and so far as is possible at complete rest, during the first two or three months of the treatment, so that no avoidable disturbance may vitiate the strict observation and record of the results obtained.

A Series of Cases.

The series of observations on the use of TD on which this note is based was carried out by my colleague, the late Dr. A. C. Inman, on some of my patients at Brompton Hospital, at the request, I believe, of the Medical Research Council, my own part in the matter being confined to general clinical supervision and advice. We submitted, rather more than two years ago, a joint report to the Council, with details of individual patients, temperature charts, and post-mortem notes in fatal cases. This was apparently not considered to be of sufficient interest for publication. Owing to the recent death of Dr. Inman, which has deprived me of the hope of further collaboration with him in such research, I have felt that his painstaking investigations into the value of TD, carried out as they were with all the exactitude of a trained scientific worker, deserved a better fate than to repose in the pigeon-hole of a Government Department. Although no definite conclusions could be drawn from the few cases available, he obtained, at any rate, some indications which might be of interest to other investigators and lead to further trial of this form of tuberculin. For the sake of brevity I shall note only a few points which struck me at the time.

At the beginning of the trial Inman chose for his subjects cases of advanced disease, many of them clinically apparently hopeless. This was done, I understood, by desire of Prof. Dreyer, who preferred that his preparation should obtain no fictitious credit from being used on patients who might be expected to improve in any case. Such a choice of cases would naturally be unfavourable to any statistical examination of the results obtained; nevertheless, it proved fortunate otherwise, since it was from a study of the fatal cases that the most definite indications as to the action of TD were obtained. Carefully administered, the tuberculin produced, so far as could be judged, no ill-effects even in these unfavourable subjects. Indeed, several patients appeared to put up an unusually good fight against the disease. One girl, aged 17, who was sent into the hospital as hopeless and unlikely to live many months, went out restored to some degree of activity and has only recently died—four years after her first admission. An older girl of 21, equally ill, lived for 11 months and seemed at first to make some improvement; while a third, who exhibited throughout a remittent or intermittent pyrexia reaching almost invariably 101°–103° F. in the evenings, also lived for 11 months—a long duration for a patient suffering apparently from so active an infection. In these cases of long duration which came to necropsy Inman noted an almost complete absence of caseation throughout the body and an unusual development of fibrous tissue around the lesions; and in the last-mentioned case there was found throughout the chest and abdomen an immense number of small, firm, white lymphatic glands, somewhat resembling haricot beans and showing no trace of caseation or softening. Clinically, it would be easy to parallel any one of these cases with others treated by ordinary methods; but it seemed to us a larger number, among our eight very advanced cases, than might have been expected on the theory of chances. The post-mortem findings suggested that some increase or at least modification of the process of resistance had occurred—in one instance apparently connected with the lymphatic system—which would correspond with the slow downward course as observed clinically in these patients.

Of the moderately advanced cases a considerable proportion improved satisfactorily at the time. The final results are not very encouraging—of 21 cases, two are well and at work, nine are alive but not able to work, nine have died, and one is unaccounted for; but, as stated above, little benefit could be expected from the use of tuberculin in this type of case. Of early cases (eight) all are alive and at work, the average interval since the end of their treatment being about three years. Two cases of tuberculous glands, and one of tuberculous peritonitis did well, and in cases complicated by laryngeal affection this condition usually seemed to be favourably influenced.

Diaplyte Vaccine in 1927.

I have myself used diaplyte vaccine in nine cases during the past year. Of these, six were cases in which there was persistent pyrexia in spite of rest in bed, and in four of these a permanent fall of temperature to normal limits was effected. In the fifth case, after a preliminary fall of fever, a relapse occurred and no permanent benefit resulted; while in the sixth, an advanced case in which the vaccine was only tried as a last resort, no good was produced beyond the psychological effect of the new remedy. The other three patients suffered from laryngeal tuberculosis with comparatively slight involvement of the lungs. In two marked improvement took place; in the third only slight immediate benefit, the patient going to a sanatorium for further treatment. Here, again, the numbers are too small to admit any inference to be drawn, but I am sufficiently encouraged to make further trial of the preparation.

In conclusion, I would mention two questions which have occurred to my mind in connexion with these investigations: 1. Is it right on completion of a course of tuberculin treatment to discontinue the injections suddenly, or should one withdraw the remedy gradually lest the patient should miss an accustomed stimulus? In Inman's cases sudden cessation was the rule, and I have hitherto followed

this procedure; but a more gradual withdrawal would seem theoretically desirable. 2. It not infrequently happens during a course of tuberculin injections, which is producing apparent benefit to the general condition and to the disease in the lungs, that a sudden attack of pleurisy intervenes and apparently undoes all the good work. The explanation is not clear. Can it be that tuberculin increases the local resistance, in the form of fibrosis,[1] and has little or no effect on the general (humoral?) immunity of the patient, in whatever this may consist?

I take this opportunity of expressing my sincere thanks to Prof. Dreyer for his kindness in furnishing me with a liberal supply of his vaccine.

THE SCHICK TEST AND IMMUNITY TO DIPHTHERIA.

By ROBERT CRUICKSHANK, M.D. ABERD., D.P.H.,

RESIDENT ASSISTANT MEDICAL OFFICER, BELVIDERE HOSPITAL FOR INFECTIOUS DISEASES, GLASGOW.

ALL probationer nurses on the staff of Belvidere Hospital for Infectious Diseases, Glasgow, have been, since 1922, tested by the Schick test for susceptibility to diphtheria. They are tested from two to four months after commencing nursing duties, as they are on probation for three months before being permanently appointed to the staff. During 1926, 85 probationer nurses, whose ages ranged from 18 to 24 years, were Schick tested, and of these 25 (or 29·4 per cent.) reacted positively. Groups of about 20 nurses were tested at one time, and in each batch the number of positive reactors was about 30 per cent. Twenty-four of the twenty-five nurses who reacted positively were given immunising doses of the prophylactic toxoid-antitoxin mixture (Burroughs Wellcome and Co.). A small initial dose of 0·1 c.cm., as a test of sensitivity, was first injected subcutaneously, followed three days later by a 1·0 c.cm. dose, and at weekly intervals thereafter by second and third doses of 1·0 c.cm. One nurse gave a moderately severe reaction after the first 1·0 c.cm. dose (temperature 101° F., arm painful and swollen, sore-throat, and general malaise), and seven nurses had slight elevation of temperature, with painful arm and some malaise. The others, apart from some stiffness of the arm, did not complain.

Ten out of 12 nurses immunised in April, 1926, were retested in November, and two of these still gave weak positive reactions. These two nurses were given a further dose of 1·0 c.cm. of the toxoid-antitoxin mixture in December, 1926, and when retested in March, 1927, reacted negatively; 11 of the 12 nurses immunised in December, 1926, were retested in March, 1927 (three months after immunisation). All reacted negatively, and when tested a fortnight later with a stronger dilution of toxin only one gave a weak positive reaction. Individuals who prove refractory to the ordinary course—probably because of a deficient antibody reaction in their "make-up"—require a more intensive course of immunisation, and it is obviously important that immunisation should not be discontinued until the patient has become negative to the Schick test. Such people are analogous to the patients, of whom there are well-authenticated instances, who develop second and third attacks of diphtheria.

Value of the Schick Test.

From January, 1924, to January, 1927, six out of a total of some 200 probationer nurses who joined the staff during that period developed faucial diphtheria *before they were Schick-tested*. Of those who were Schick-tested, two nurses developed sore-throats and had positive cultures, but did not show any evidence of clinical diphtheria; one of these had been Schick-positive, and had been given the full immunising course two years previously, while the other had been Schick-negative. One nurse who had given a strong positive reaction developed faucial diphtheria with extensive membrane on both tonsils and uvula six weeks after immunisation, and before a second Schick test was done. Altogether, therefore, during the past three years only one nurse has developed clinical diphtheria after being Schick-tested; in her case the disease appeared six weeks after immunisation, a period regarded as being too early for the complete development of immunity.

During the years 1916–21—that is, in the period prior to immunisation—there were 30 cases of clinical diphtheria among the nursing staff of the hospital, or an average of five every year, which, in addition to the impairment of health of the individual and the crippling of the staff, was costing the corporation approximately £90 per annum. The cost of immunisation has been reckoned by Graham Forbes[1] as about 3*s*. for every school-child; it must be considerably less for a hospital nursing staff. The cost of immunising a fresh batch of 50 probationer nurses each year would, therefore, not exceed £5.

These results illustrate the value of modern methods in controlling the incidence of diphtheria among the personnel of a fever hospital. All nurses should be Schick-tested immediately on joining the hospital staff, and only those reacting negatively should be allowed to nurse in diphtheria wards until such time as the positive reactors have been immunised.

Environment.

It has been shown by W. H. Park,[2] J. L. Lavan and E. C. Black,[3] and others, that town dwellers develop an immunity to diphtheria more quickly and in greater proportion than do country dwellers, and, further, that a larger percentage of slum-bred children are Schick-negative than are the children of the well-to-do classes. An analysis of the previous environment of 50 nurses who reacted positively to the Schick test showed that 20 had lived in the country or in villages, 18 in small towns or in the suburbs of large towns, and 12 in large towns—i.e., 38 (or 76 per cent.) had been brought up in the country or in small towns. A similar analysis of 50 nurses reacting negatively showed that 34 (or 68 per cent.) had lived in the country or in small towns. In other words, practically the same proportion of those who had developed immunity to diphtheria came from the country, as did those who were susceptible. It is therefore suggested that age eliminates the influence of environment in the development of a gradually acquired immunity.

Summary.

The testing of nurses by the Schick method, and the active immunisation of those found to be susceptible to diphtheria has given satisfactory results, and has almost entirely eliminated the incidence of clinical diphtheria among the nursing staff of a large fever hospital.

I wish to thank Dr. T. Archibald, medical superintendent of Belvidere Fever Hospital, Glasgow, for permission to publish this work, and Dr. R. A. O'Brien, of the Wellcome Physiological Research Laboratories, for the material and many helpful suggestions.

[1] The different possible actions of tuberculin were discussed by Dr. Georg Schröder in his article on Specific Stimulation Therapy and Protective Inoculation in Tuberculosis, THE LANCET, 1927, i., 167.

[1] Prevention of Diphtheria. Medical Research Council, Special Report Series No. 115. H.M. Stationery Office.
[2] Park, W. H.: Jour. Amer. Med. Assoc., 1922, lxxix., 1584.
[3] Lavan, J. L., and Black, E. C.: Ibid., 1927, lxxxviii., 895.

EXTENSION OF BRADFORD MUNICIPAL HOSPITAL.—Proposals are being considered for the extension of the operating facilities and the provision of additional accommodation for nurses. In 1920 there were 428 operations; last year the number reached 2249. The present nurses' home holds only 50 of the 200 nurses: the remainder are housed in old buildings which are said to be fit only for demolition.

THE MORTALITY OF OPERATIONS UPON THE ENLARGED PROSTATE.

BY HAROLD EDWARDS, M.B. LOND., F.R.C.S. ENG.,

SURGICAL TUTOR AND TEACHER IN CLINICAL SURGERY, KING'S COLLEGE HOSPITAL.

RECENTLY published statistics showing the deaths after operation upon the enlarged prostate in this country compare very unfavourably with the low mortality-rate claimed by surgeons in America and on the continent. The mortality of four London hospitals is said to vary between 13·1 per cent. and 20·1 per cent. for enucleation of the prostate, and between 12·9 per cent. and 20·8 per cent. for all operations, including suprapubic cystotomy and enucleation of the prostate by the single-stage and the two-stage methods.[1] It is doubtful whether any operative procedure upon a non-malignant condition is justifiable if the death-rate be 20 per cent. or over. The prognosis for the patient with prostatic disease appears even gloomier from the comparisons made by Sir Cuthbert Wallace, in his recent Bradshaw lecture[1] at the Royal College of Surgeons, between the mortality-rates of operations upon hospital patients in the two periods 1910–16 and 1922–26. Though these figures show the mortality in suprapubic enucleation to have decreased from 20·2 per cent. to 14·5 per cent., the total operative mortality (including cystotomy alone) had actually risen from 20·2 per cent. to 22·5 per cent. The figures indicate either a lack of progress in operative technique or a failure on the part of the practitioner to recognise the condition before the renal function is impaired—for, apparently, uræmia is the most frequent cause of death, and hæmorrhage a rare complication of the operation.

The high mortality figure led me to investigate the post-operative mortality for operation upon the enlarged prostate at the Urological Clinic in King's College Hospital. The five years 1922–26 were taken, and the following figures obtained:—

1922–26.—Total operation cases, 136. In 126 cases the prostate was removed; in 122 cases this was performed in one stage, with ten deaths, giving a mortality of 8·2 per cent. In four cases the operation was done in two stages, with one death, bringing the total mortality of prostatectomy to 8·7 per cent.

Prostatectomy.	No. of cases.	Deaths.	Percentage mortality.
1. Single-stage operation ..	122	10	8·2
2. Two-stage operation ..	4	1	25·0
Total	126	11	8·7

In ten cases suprapubic cystotomy alone was performed with seven deaths, making the total mortality for all three operations 13·2 per cent.

These figures, though not unduly low, are more encouraging.

Technique.

I wish to lay particular emphasis on the operative technique employed in these cases as a routine, which is that introduced by Sir John Thomson-Walker, and usually described as "open prostatectomy." This is an unfortunate misnomer, and appears to have led to a misunderstanding of the method. Sir Cuthbert Wallace, in his Bradshaw lecture,[1] suggests that the prostate is removed under the eye of the surgeon. This, however, is not so. In the Thomson-Walker operation the enucleation of the prostate is done blindly, and the prostate is not seen until it is withdrawn from the suprapubic wound. This is the first stage of the operation. As soon as removal has been effected, the patient is placed in the Trendelenburg position, and the prostatic cavity is exposed by placing a self-retaining retractor in the bladder. The necessity for this step is frequently obvious. Large tags of torn prostatic capsule are often seen bridging across the internal meatus, particularly in cases in which the prostate was of the "adherent" type. Small residual adenomata are sometimes seen. Removal of such tags and nodules is readily effected by means of long curved scissors. Often one or two vessels can be seen throwing a stream of blood across the cavity from side to side; these can be caught in artery forceps and ligatured. Finally, a continuous hæmostatic suture is inserted between the posterior lip of the meatus and the adjacent edge of the prostatic capsule, and there is usually no further bleeding at all. With a perfected technique the whole operation, from the time of the incision in the skin to the insertion of the last stitch, should not take longer than 20 minutes.

The operation has suffered much adverse and totally undeserved criticism. This may be partly due to misunderstanding created in the minds of critics by the unfortunate description of the operation as an "open prostatectomy," but the attitude of most critics rouses a suspicion that they have not read the description completely, and have never actually seen the operation performed. In surgical text-books, with one or two notable exceptions, the operation is mentioned only to be condemned. First, because the exposure of the prostatic cavity is alleged to prolong the operation unduly and unnecessarily. As has been stated, the operation should be completed within 20 minutes, so that any criticism on this basis is unwarranted. Secondly, because "shock" is stated to follow the insertion of the bladder retractor and examination of the prostatic bed after enucleation. The most recently published British text-book on surgery, in advocating irrigation of the prostate cavity immediately after operation to secure hæmostasis, states:—

"This practice (irrigation) will obviate the necessity for pulling up and exposing the prostatic bed to arrest hæmorrhage, as advocated by Thomson-Walker, a proceeding attended by *great shock*."

The prostatic bed is not "pulled up" in the Thomson-Walker operation. Hæmostasis is obtained by ligature of obvious bleeding points, and by the introduction of a hæmostatic suture. This procedure cannot be responsible for any appreciable amount of shock. If it were, shock should figure largely in this series as a cause of death after operation. (The causes of death in the fatal cases are given below.) Further, the total mortality of the operation could not be expected to compare as favourably with that given for the blind operation of Freyer if the amount of shock were appreciably greater. No one can dispute that a varying degree of shock is always associated with prostatectomy, however performed. The shock is due almost entirely to the enucleation of the prostate from its bed. Criticism of the Thomson-Walker operation on these lines is therefore groundless.

Indirect criticism is levelled at the operation, in other books, by upholding the older method of Freyer, which is stated to be highly satisfactory, and the cases to do "quite well." "Quite well" is a broad phrase. It may justly be applicable to the immediate prognosis of Freyer's operation but, judging from the series of cases which have attended the Urological Clinic for difficulty in micturition after having a prostatectomy done by the Freyer method some years previously, and by the 69 cases of severe obstruction following prostatectomy by the Freyer method recently published,[2] it must be modified. Such cases are usually shown at operation to have a dense mass of tissue filling the prostatic cavity, with a pin-hole internal meatus. It is true that one case attended the clinic with obstructive symptoms five years after prostatectomy by the Thomson-Walker method, but this was due to the growth of a fresh adenoma from prostatic remains. The specimen was shown recently at a meeting of the Urological Section of the Royal Society of Medicine. It was successfully removed at the second operation, and the case is included in the present series.

[1] Cuthbert Wallace: THE LANCET, 1927, ii., 1059.

[2] Thomson-Walker: THE LANCET, 1927, i., 1009.

The criticisms of the operation, therefore, are groundless. The operation, in fact, is abundantly justified by the mortality from it, which compares very favourably with that of any recent figures published for the older operation, and by the fact that the risk of subsequent obstruction is reduced to a minimum.

Causes of Death after Operation.

Of the 11 deaths following removal of the prostate, ten followed the single-stage operation, giving a mortality for that operation of 8·2 per cent., and one followed the two-stage operation, a mortality of 25 per cent. (for four cases) for that method. The total mortality for both methods was 8·7 per cent. The ages of the patients who died ranged from 63 years to 79 years, ten being 65 and over. The mean for the group was 69·4 years. This is above the average age for all cases operated upon (65·5 years). It is of great interest to note that of 28 patients operated upon under 60 years, not one was lost.

Of the ten deaths following the single-stage operation the following causes are recorded: uræmia, 4; pyelonephritis, 2; cardiac failure, 2; hæmorrhage, 1; shock, 1. After the two-stage operation one patient died from acute broncho-pneumonia.

In order to dispel any doubts with regard to the assignment of these causes, a short note is given on each case.

Uræmia.

CASE 1, aged 67.—Death occurred nine days after operation. On the day preceding death the blood-urea was 250 mg. per c.cm. Before operation there were no symptoms of renal insufficiency, and the urea concentration in the urine was over 2 per cent.

CASE 2, aged 75.—Death occurred in 48 hours. The blood-urea before operation was 52 mg. per c.cm. The patient recovered for a short while after the operation. In the first 24 hours the urine was coloured red, but there was no severe hæmorrhage.

CASE 3, aged 63.—Death occurred 19 days after operation. For a few days preceding the death hiccough was incessant, and during the last two days there was vomiting. Before operation the blood-urea was 93 mg. per c.cm. There were no symptoms of uræmia, and the urea concentration in the urine averaged 1·93 per cent.

CASE 4, aged 67.—Died on the seventh day. Commenced to hiccough on the third day and did not cease until the collapse, which preceded death. There was severe and intractable constipation.

Pyelonephritis.

CASE 5, aged 65.—Death occurred on the fortieth day after operation. Post-mortem examination showed acute pyelonephritis and ureteritis. The renal pelvis and calyces were dilated. The pelvic colon was also inflamed, and ulcerated.

CASE 6, aged 79.—Death occurred on the seventeenth day after operation. Post-mortem examination showed acute suppurative pyelonephritis, with dilated pelves and calyces This patient was a diabetic, and on admission the blood-sugar was 0·31 per cent. After appropriate treatment of the diabetes the blood-sugar was reduced to 0·121 per cent. by the day of operation.

Cardiac Failure.

CASE 7, aged 65.—Death occurred on the eleventh day after operation. Well in the morning, he suddenly collapsed and died. Death was no doubt accelerated by the troublesomeness of the patient, who, on the second day, contrived to remove both drainage-tubes and catheter, and walk about out of bed.

CASE 8, aged 73.—Died 18 hours after operation. Was emphysematous and had an enlarged heart. He was pronounced fit for operation by the physician. Before death the heart was dilated, with coupling of the beats.

Hæmorrhage.

CASE 9, aged 65.—Death occurred from hæmorrhage 24 hours after operation. The cavity was packed twice without avail.

Shock.

CASE 10, aged 77.—Died within 12 hours of operation, without regaining consciousness. Bleeding from the prostate cavity was practically nil.

Acute Broncho-pneumonia.

CASE 11, aged 67.—Died 34 days after operation. Post-mortem examination showed acute broncho-pneumonia.

Commentary.

The most biased critic of the Thomson-Walker operation will admit that one death from hæmorrhage out of 126 cases (less than 0·8 per cent.) is a low figure—perhaps lower than can be shown for a similar series of operations by the old method of Freyer. The value of examining the prostatic cavity for bleeding points, and of the hæmostatic suture, is self-evident. The low mortality from operative shock (again less than 0·8 per cent.) affords ample proof that the second part of the operation makes no appreciable addition to the shock due directly to enucleation. In both cases of death due to pyelonephritis, the renal calyces and pelves were dilated. It is probable, too, that in three of the four cases in which uræmia was the cause of death, sepsis played a part. Patients rarely die from ascending pyelonephritis if the kidneys are healthy. Sepsis and uræmia together account for 60 per cent. of the deaths following the one-stage operation, and are therefore the complications most to be feared. This relatively high mortality can only be eliminated by earlier operation. It is not so much a question of better diagnosis, which is not as a rule difficult; it is realisation of the dangers of delay in sending a case to hospital that alone can reduce the mortality. Many of the cases operated upon attended hospital for the first time with acute retention, and usually there was a history of increasing difficulty for many years. The practice of "cooking" a prostate until it is bad enough for operation cannot be too strongly condemned, and until it is abolished sepsis and uræmia will always be the predominant causes in any operative mortality list.

Cardiac failure is in rather a difficult category. In any major operation, in which shock is unavoidable, on men over 60 years of age, occasional deaths from this cause must occur, and careful selection of cases is necessary if it is to be avoided.

Clinical and Laboratory Notes.

A CASE OF CEREBELLAR TUMOUR.

BY A. GURNEY YATES, M.D. EDIN., M.R.C.P. LOND.,
PHYSICIAN, SHEFFIELD ROYAL INFIRMARY.

THIS case is similar in several respects to that of intracranial neoplasm described by Dr. John Inkster in THE LANCET.[1]

The patient was a female child of 5, with a history of a purulent discharge from the right ear since she was 8 months old. For several weeks she had suffered from bilious attacks, which, however, were infrequent and attracted little attention. Three weeks before attending hospital on Oct. 24th vomiting began to occur almost daily, and other symptoms suggestive of intracranial disease made their appearance. A squint developed, she began to complain of headaches, her walking was noticed to be unsteady, and her mentality became increasingly sluggish. The pupil reactions were normal, but the right pupil was a little larger than the left, and the right optic disc showed very slight swelling, the left being normal. There was an internal squint from paralysis of the right sixth nerve. There was no nystagmus, the tongue was clean, and the temperature and respirations were normal. The right ear was discharging, but there was no tenderness over the mastoid process. The child looked ill, and mentally was slow and dull. Both arms were ataxic, the right being definitely more so than the left. The muscles of the right arm were atonic, and the biceps and triceps jerks were absent on both sides. Both legs were slightly ataxic and the knee- and ankle-jerks were absent. The plantar reflexes were flexor.

The history and symptoms were strongly suggestive of a right cerebellar lesion, and in view of the old infection in the right ear she was sent to the wards with a provisional diagnosis of a right-sided cerebellar abscess.

The mastoid and the middle and posterior fossæ of the skull were explored by Mr. W. S. Kerr but no pus was found. Her condition remained unchanged for several

[1] THE LANCET, 1927, ii., 1074.

days and a further exploration of the right cerebellar region was contemplated, but she suddenly died.

At the autopsy the cerebral convolutions were found to be flattened and the ventricles greatly distended. A very well-defined pressure cone was seen on the inferior aspect of the cerebellum, distorting the medulla. There was no meningitis, but on opening the right lobe of the cerebellum a tumour, somewhat larger than a large walnut, was found embedded in its substance. It was firm in consistency and translucent in appearance. On section it proved to be a glioma.

As in Dr. Inkster's case, the presence of a primary focus of sepsis and the comparatively recent onset—though in my own case slight symptoms had been present for several weeks—led to the erroneous diagnosis of an abscess. The almost complete absence of optic neuritis supported this error, as severe and early optic neuritis is the rule in cerebellar tumour.

A CASE RESEMBLING ADDISON'S DISEASE

TREATED WITH PITUITARY EXTRACT.

By EDWARD C. B. IBOTSON, M.D. LOND.,
MEDICAL OFFICER, DOLGELLY UNION AND LONDONDERRY HOSPITAL, MACHYNLLETH.

THE following case is of interest because: (1) Addison's disease is uncommon; (2) a case of such deep pigmentation is not often seen; (3) the apparent reaction to pituitary extract is unusual; (4) mental symptoms and headache were marked; (5) benefit was apparently derived from pepsin and pancreatin (pancreas is supposed to be antagonistic to suprarenal).

I first saw the patient, a widow, on Sunday, Jan. 2nd, 1927, when I was told that she had been ill for three years, off and on. I found her very asthenic; the pulse was slow, very feeble, soft, and compressible; voice very weak; temperature 97° F. She complained of severe headache; she had some bronchitis, but no signs of pulmonary tuberculosis, and the sputum was negative. She was vomiting up food, froth, and mucus. She was deeply pigmented everywhere, her face a chocolate colour, hands nearly black, chest, back, and abdomen all a deep chocolate; black pigment inside mouth on gums, cheeks, and tongue. I was informed that she was noisily delirious at night. I concluded that she had Addison's disease. There was no anæmia or wasting and the urine was normal throughout.

I put her on whole pituitary gland, grs. 2, night and morning, with the idea of raising the blood pressure. Moreover, Sajous considers that the pituitary stimulates adrenal secretion. I also gave her tablets of pepsin and pancreatin, grs. 2½ of each t.d., and ordered her invalid Bovril, Bengers Food, and soda and milk.

I intended to give suprarenal gland when I obtained a stock, but I did not give it as the improvement from the first was rapid and extraordinary. By Jan. 5th the mental state had become normal and the vomiting had quite ceased on Jan. 8th. The systolic blood pressure on Jan. 14th was 115. She was retaining all food and growing cheerful. I saw her again on the 25th, when she was up and dressed and apparently quite normal in every way, cheerful, and active, and her eyes bright. The pigmentation had not altered at all. On Feb. 25th she had had a return of the asthenia, which was again cured by whole pituitary in doses of 2 g. (Burroughs Wellcome tabloids) night and morning. Her systolic blood pressure in May was 122.

The patient remained under observation until September, 1927, and gained sufficient strength to come and see me at the surgery, a distance of over a mile. An attempt to substitute adrenal extract for pituitary met with no success, nor did another make of pituitary give the same feeling of well-being. The blood pressure kept up to 120 systolic. The eyes were remarkably bright, in fact lustrous. The pigmentation remained quite unaltered. The mental state was peculiar, she had suspicions that people were watching and following her and trying to rob her. She left the district in September, travelling alone, but I hear that she is still alive and keeping up and about.

The case does not present any aspect of pernicious anæmia; the hæmoglobin and red cell counts were nearly normal. None of the many forms of pigmentation mentioned by Osler fits in with the facts of this case. The asthenia was profound and the vomiting severe, and together with the long duration and the deep pigmentation seem to indicate some form of suprarenal disease. Apparently there is much more disturbance of the suprarenal cortex in this patient than of the medulla. Osler mentions cases of Addison's disease living from six to ten years, and even cases of recovery. This case appears to favour Sajous's view that pituitary extract stimulates the production of adrenalin.

A CASE PRESENTING A CLINICAL PICTURE OF CONGENITAL HEART DISEASE

WITH CONTRARY PATHOLOGICAL FINDINGS.

By NOEL F. PEARSON, M.R.C.S.ENG.,
HOUSE SURGEON, BRADFORD CHILDREN'S HOSPITAL.

THE interesting feature of this case is the almost typical picture of congenital heart malformation, associated with very unexpected and unusual post-mortem findings.

The patient, a boy aged 6 weeks, was the fourteenth child. He was brought to the Bradford Children's Hospital because he had not thrived since birth. The mother said he had been a seven-months' baby, but the birth-weight was 7 lb. 1 oz. Since birth there had always been feeding difficulties, and the child had always had a blue tinge about its face and lips.

Clinical Examination.—Weight 6 lb. 6 oz. The marked feature was the colour of the child; its face and lips had a bluish-green appearance, and its extremities were bluish-pink and cold. The heart showed no enlargement, but a fairly loud double murmur was audible over the whole of its precordium, more marked at the base.

Clinical Course.—During the time the child was in hospital it took its food fairly well, but lost 3 oz. in weight. Some days the cyanosis was more marked than others. On five occasions it had a slight rise in morning temperature (to 99·6° F.). Diagnosis: congenital heart disease. The child died three weeks after admission.

Post-mortem examination included all the organs except the brain. Nothing abnormal was found beyond a certain amount of free fluid in the abdominal cavity, until the heart was examined. There was no excess of free fluid in the pericardial sac. On the anterior surface of the right ventricle was a patch of pericarditis, about the size of a two-shilling piece. The heart was slightly enlarged generally, but the chambers, all the valves, the aorta, and the pulmonary artery were perfectly normal.

The only conclusion is that death was caused by some general infection, unknown, of which the pericarditis was a local manifestation.

My thanks are due to Dr. W. Hayburn, hon. physician, and Dr. Ralph Rimmer, pathologist to the Bradford Children's Hospital, for permission to publish this case.

TREATMENT OF DIPHTHERIA CARRIERS.

By PAUL BOUSFIELD, M.R.C.S. ENG.,
PHYSICIAN TO THE LONDON NEUROLOGICAL CLINIC, MINISTRY OF PENSIONS.

THE waste of time and money sometimes involved in the treatment of diphtheria carriers is well known to all medical officers of health, and any method of treatment which gives promise of certainty in its action is worth pursuing further. I therefore feel that a note on a method recently practised by myself may be of some interest.

I recently had a carrier who for three months defied the usual method of painting with Löffler's solution. An occasional single negative swab was obtained from the throat, but never a sequence of them. I then had the throat *sprayed* with an atomiser and afterwards painted with a 5 per cent. solution of mercurochrome 220. This was done daily for a week and at the end of that period three consecutive negative swabs were obtained. I have since used the same treatment on another carrier with a similar result; in a week the throat was quite free from the Klebs-Löffler bacillus.

While the number of cases does not prove mercurochrome 220 to be a specific, yet it is sufficiently suggestive to make it worth the serious consideration of practitioners. Mercurochrome 220 is not nearly so unpleasant in the mouth as Löffler solution, and this is by no means unimportant when dealing with children.

Medical Societies.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

A MEETING of this Society was held in the Medical School, St. Thomas's Hospital, London, on Jan. 6th and 7th, Profs. L. S. DUDGEON and J. M. BEATTIE in the chair.

G. SCOTT WILLIAMSON and INNES H. PEARSE (London) hold that Graves's disease is due to an excess of the real secretion of the thyroid gland which contains no iodine and does not accelerate the metamorphosis of tadpoles. A short course of iodine, partial excision or rest in bed all lead to the appearance of colloid which contains iodine and is active in the tadpole test.—J. DAVIDSON (Glasgow) described an example of the rare condition in which osteophytes arise inside the skull during the puerperium; the dura is thickened and œdematous and contains foci of amorphous calcareous deposit as well as true bone.—S. C. DYKE (Wolverhampton) detailed a case of long-standing jaundice with multiple xanthomata and splenomegaly, the latter due to great numbers of large phagocytic cells showing no lipoid histologically, though on chemical analysis the spleen contained much cholesterol: the blood cholesterol was extremely high.—J. B. DUGUID and J. MILLS (Cardiff) had found that doubly refractile crystals developed in tissues kept in watery liquids even after thorough fixation in formalin.—G. HADFIELD (Bristol) had met with four cases of acute bilateral necrosis of the globus pallidus, three of them after coal-gas poisoning. There was extensive ferruginous infiltration of the walls of the blood-vessels which was found also in many normal brains.—M. J. STEWART and S. J. HARTFALL (Leeds) drew attention to the abundance of lipoidal foamy cells in the stromata of certain tumours, due to the phagocytosis of the remains of degenerated tumour cells. They also described a case in which multiple adenomata composed of pancreatic islet tissue were found in the pylorus and duodenum.—T. LUMSDEN (London) discussed the causes of regression in implanted tumours; this, he thought, was due in immunised animals to the tumour cells being killed by blood antibodies and the secretions of leucocytes rather than to a failure of the host to provide stroma.—A. M. BEGG and J. A. MURRAY (London) from a study of the growth of a filtrable fowl tumour concluded that the tumours resulting from the inoculation of dead cells arose from the endothelium of the blood-vessels of the host; hence the tumour was a real endothelioma—J. S. YOUNG (Leeds) by putting a mixture of Soudan III bile-salts and oil into the pleural cavity had induced remarkable proliferation, hyperplasia, and metaplasia of the pleural endothelium and the alveolar epithelium, in one instance going as far as stratified squamous epithelium.—L. J. WITTS (Cambridge) described the increase in the monocytes of the blood which could be induced by *B. monocytogenes* and extracts of lymphoid tissue.—R. MUIR and J. S. YOUNG (Glasgow) found that free hæmoglobin circulating in the blood was not excreted into the bile; it did not lead to an accumulation of iron in the liver but in the kidney.—A. E. BOYCOTT (London) discussed the use and abuse of the word "antigen."—A. FELIX and L. OLITSKI (Jerusalem) described a long series of observations on the use of preserved bacterial emulsions for diagnostic agglutination tests by qualitative receptor analysis; H agglutinins are often absent in human typhoid and nothing is so satisfactory as live bacilli.—F. W. ANDREWES (London) had noticed that the colonies of hæmolytic streptococci on plates could be distinguished into "rough" and "smooth"; the rough were more virulent and agglutinated specifically, the smooth giving group reactions.—G. H. EAGLES (London) dealt with the same topic; he had found rough, smooth, and intermediate colonies by continued culture on serum agar; in one case the rough, in another the smooth were more virulent. The forms were quite distinct by agglutination but yielded equal amounts of the same toxin.—F. S. FOWWEATHER (Leeds) preferred the neutral potassium oxalate method with neutral potassium gold chloride for the preparation of gold sols for the Lange test.—A. T. GLENNY, C. G. POPE, and H. WADDINGTON (Beckenham) found a borax-boracic acid salt mixture the best diluent for Schick toxin.—R. A. O'BRIEN and C. C. OKELL (Beckenham) said that human experience had shown that diluted toxins for the Schick and Dick tests kept quite satisfactorily in this diluent.—G. R. JAMES, A. JOE, and R. SWYER (London) found that scarlet fever toxin could be preserved without loss of potency for Dick testing by drying over sulphuric acid and phosphorus pentoxide.—T. DALLING (Beckenham) reported that *welchii* toxin and antitoxin could be titrated by intravenous injection in mice, intradermically in guinea-pigs, or by the hæmolytic effect in vitro, and proposed a provisional antitoxic unit.—P. HARTLEY (London) found that the simultaneous injection of muscle extract or peptone broth much depressed the antitoxic response of a guinea-pig to a second injection of diphtheria toxin.—C. H. BROWNING and R. GULBRAUSEN (Glasgow) showed that experimental trypanosomiasis in mice might be ultimately cured after repeated relapses by giving the same dose of the same trypanocidal preparation.—W. H. TYLER (Cardiff) described the preparation of an extract of tubercle bacilli active in the tuberculin reaction by extraction with water and dilute alkali, precipitation with acid and ammonium sulphate and dialysis.—J. W. MCLEOD and J. GORDON (Leeds) showed that an oxidase test with dimethylparaphenylenediamine was a useful help in isolating the gonococcus, the cholera vibrio, and other bacteria.—C. H. WHITTLE (Cambridge) found types I. and III. of the pneumococcus more virulent than type IV.; all strains isolated from cases of pneumonia, broncho-pneumonia, and empyema were highly virulent.—E. C. LOWE (Liverpool) suggested from his experience that the organism responsible for an infection might be isolated from a mixture by a preliminary incubation in the patient's fresh blood.—W. MAIR (London) described a uniquely virulent strain of *B. diphtheriæ*, the effects of which could not be wholly neutralised by any quantity of diphtheria antitoxin.—J. CRAIGIE (St. Andrews) found that by violent shaking the flagella could be detached from the typhoid bacillus (without killing the organism) and subsequently broken up practically to invisibility; the flagella and stripped bodies each show their characteristic agglutination.—D. NABARRO (London) described his observations on the variability and mutations of dysentery bacilli and the occurrence of anomalous forms in human stools.—F. H. STEWART (Cheddleton) showed variation and papillation in *B. coli mutabilis*; A. H. MILLER (Bournemouth) films of blood and bone-marrow from acute myeloblastic leukæmia; E. H. LEPPER and E. SYLK (London) infarction of the uterus from syphilitic arteritis; E. H. LEPPER and D. CAREW-HUNT (London) a congenital hernia of the diaphragm; M. J. STEWART and A. L. TAYLOR (Leeds) an adenomyoma in a Meckel's diverticulum; G. S. WILSON (London) an improved pattern of McIntosh and Fildes's anaerobic jar; G. S. WILLIAMSON (London) specimens illustrating the development of the lymph system of the thyroid; and C. V. PATRICK (London) thoracopagous twins.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting held on Dec. 15th, the President, Dr. J. C. M. GIVEN, in the chair, Mr. R. WATSON JONES read a paper on the

Ritual of Fracture Reduction.

He said that the most valuable—and at the same

time the most ignored—of the many auxiliaries of treatment introduced since the pioneer days of Hugh Owen Thomas and Sir Robert Jones, was radiographic control, now so perfect that plaster and certain metal splints offered no barrier. The modern routine of fracture-reduction must include not only manipulation followed by fixation, but also immediate radiography to determine the position which was being fixed. If this was shown to be imperfect, the routine—manipulate, fix, X ray—must be repeated as often as necessary, on consecutive days, until the position was perfect. Fractures must be regarded as emergencies, and the organisation of a hospital's fracture department should provide for the immediate institution of treatment, with further daily attention until full reduction was secured. The twice-weekly fracture clinic was as obsolete as the once-weekly operating day. The combination of such a routine with control throughout by X rays rendered fracture-reduction simple and certain, and perfect results could be secured, in more than 90 per cent. of recent fractures, by manipulation alone. When operative reduction was necessary intramedullary ivory pegging was the operation of choice, because of the perfect apposition, impaction and alignment ensured. The importance of impaction was seen in the relatively slow union after autogenous bone-pegging. The results of 20 cases of medullary pegging (including 12 from a total of 200 recent and old fractures of the forearm) showed that in the absence of infection union was never delayed, and disappearance of the peg was complete in three to six months.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

A MEETING of this Section was held on Dec. 16th, 1927. In the absence of the President, Sir WILLIAM WHEELER took the chair.

Bone Pegs.

Mr. WILLIAM PEARSON, in exhibiting some intramedullary bone pegs of his own design, said that the use of ivory or bone pegs was confined to transverse fractures of the shaft of the long bones, without comminution, in which operative treatment was required. The principle consisted in putting the peg into the intramedullary canal so as to keep the two main fragments in alignment while union was taking place. The advantages which Mr. Pearson claimed for his pegs were that they could easily be altered in size by merely filing off the bone, and that they did little damage to the endosteal tissue. To block the medullary canal with a solid ivory or bone peg would retard the formation of callus round the fractured surfaces; therefore his pegs had a series of longitudinal grooves on the surface, and in the larger sizes small central canals, so that callus would growth both through and round the pegs. This avoided a complete block of the medullary canal. It was not a good thing, he thought, to ream out the medullary canal and endosteal tissue, which was most important for bone-formation. The pegs had no elasticity, and as they were made of inert material the sooner they were absorbed the better. The few cases in which he had used them had done extraordinarily well. They were made in six sizes and were obtainable from Allen and Hanbury.

Mr. HENRY STOKES said that he himself had made some bone pegs, but with difficulty and without much success. Using an ordinary chisel he had got a better result by making them not round but octagonal.

Mr. ARTHUR CHANCE said that he found it tedious and rather difficult to alter the pegs themselves; in his experience it was easier to make the bone fit the peg than the peg fit the bone. He was therefore in favour of reaming out the medullary cavity.

Mr. PEARSON, in reply, said that his bone pegs were only for temporary use; they were simply an internal splint to prevent displacement. He would not use them where there was non-union; in such a case the alternative methods were to do a bone-graft or step-cut operation. The latter was feasible in fractures of the humerus.

Typhoid Infection of the Sternum.

Mr. F. J. HENRY recorded the following case.

A man, aged 62, complained of a lump on the front of the chest, which had appeared about five weeks after he had been discharged from hospital, where he had been treated for typhoid fever. There was a smooth, rounded, painless swelling about the size of a golf ball on the anterior chest wall, involving apparently the second, third, and fourth costal cartilages and the right border of the sternum. It was stony hard and very fixed to the deeper structures. A radiogram (lateral view of chest) showed pronounced thickening of the body of the sternum, with osteosclerosis. Exploratory incision was made and the lump found to consist of a fibro-cartilaginous mass, with a central cavity containing pus, from which a pure culture of *Bacillus typhosus* was isolated. No other residues of typhoid infection could be found in urine, fæces, or specimens of bile removed by the duodenal tube.

The frequency of bone complications in typhoid, said Mr. Henry, was said to be less than 1 per cent. This small incidence seemed strange in view of the probability that the marrow of most of the bones was infected sometime or other in most cases of typhoid.

The CHAIRMAN said that this was an interesting and rare case, illustrating one of the fundamental principles in surgery. He referred to the teaching of Murphy that each infection had its own date for metastasis—e.g., the infection from staphylococci appeared 16–21 days afterwards and that from streptococci seven days afterwards. In typhoid metastasis of the bones occurred from the fourth to fifth week after infection. The fact that each organism and each disease had its own date for metastasis considerably simplified the subject for teaching purposes.

Mr. CHANCE said he had had a case similar to Mr. Henry's. The patient came to him five months after having typhoid fever, with an indolent, inflammatory swelling in the right side of the sternum. A little thickened pus was obtained on incision. The rib cartilage was bare, but there was no evidence of necrosis. Healing occurred in six weeks.

Mr. STOKES quoted two similar cases in his experience. In one there was an abscess in the tibia; in the other an abscess in the back of the scalp. Both had healed up without the slightest difficulty. His experience in these two cases made him incline to the view that it was advantageous to open the bone and scrape it right away.

Mr. HENRY, in reply, said that in a similar case of swelling, occurring four to five weeks after the infection, he would leave it alone. Infections in bones other than the ribs and sternum healed up without much difficulty. The reason for difficulty in this case was that it was extremely hard for the soft parts to collapse into it. If the cavity did not heal up he proposed filling it with a muscle graft from the pectoralis major.

Spinal Caries.

The CHAIRMAN read a communication on the results of the treatment of Pott's disease by conservative treatment and by conservative treatment supplemented by bone-grafting. It was too soon, he said, to know the results of the admirable modern methods of treatment in open-air hospitals, with specially skilled assistants and trained orthopædic nurses. Under the old régime, however, the results following treatment in city hospitals, without special nursing and with inadequate methods of fixation, were far from satisfactory. A review of the figures given by different authorities suggested that very few cases of advanced Pott's caries ever reached old age. Some figures showed that within a period of 12 years 40 per cent. were dead; other authorities gave the percentage of deaths within 15 years at 38·6 and others at 40·5. 75 per cent. of the deaths occurred within the first two years. Fusion operations of the spine had been introduced in 1911 and surgeons of experience generally agreed that the bone-grafting operation was a distinct addition to the armamentarium of the general as well as the orthopædic surgeon. There was no

doubt whatever that both the Hibbs and the Albee operations caused fusion of the laminæ. This had been proved by cases which needed a second operation, by post-mortem examinations, by clinical observation, and to some extent by radiography. Sir William Wheeler urged the necessity of careful and prolonged after-treatment. His own practice was to keep the patients on a Thomas or Jones frame for three months and then to keep them in bed for three months without the frame. For another three months they were allowed to move about carefully wearing a Jones posterior spinal support night and day, and afterwards the spinal support was continued according to the progress made. He had never seen, in an adult, the absorption or disappearance of a bone-graft after introduction. Personally he was against operation in the case of children. He had operated upon several young children about 12 years ago and was satisfied that the method was not justified unless in exceptional cases. A number of surgeons advocated the operation as part of conservative treatment in young children, and had proved conclusively that the introduction of the graft did not interfere with the growth of the child. The presence of an abscess or paraplegia was, in his opinion, a strong indication for the introduction of a graft.

Discussing treatment and prognosis when paraplegia was present, Sir William Wheeler said that in his view laminectomy did more harm then good. Frazer's operation to relieve pressure was designed on sound principles. After referring to the various operations for spinal fusion he gave an account of 30 adult patients treated in the ten-year period 1917–27. Of these six had died; 19 or 20 appeared to be cured.

Mr. FREDERICK GILL said that with a bone-grafting operation the patient was restored to his normal strength in a shorter time than with conservative treatment, and he was able to carry on for a number of years. During the operation he used local as well as general anæsthesia. The skin and spinal muscles were anæsthetised with novocaine and adrenalin, and this, he believed, lessened the shock, reduced the loss of blood to a minimum, and made the operation easier by rendering the field almost bloodless. He used an osteotome or chisel for cutting the graft in preference to the Albee saw, which, he thought, cauterised the bone and was apt to destroy the osteoblastic tissue.

Mr. T. J. D. LANE, Mr. A. B. CLERY, and Mr. CHANCE also spoke and Sir WILLIAM WHEELER replied.

Ununited Fracture.

Mr. WILLIAM DOOLIN showed a man, aged 63 years, who had broken both bones of the forearm 16 years ago. There was a false joint with very poor grip; both pronation and supination were present, but only to a limited extent, and the patient could not lift weights. Owing to his age and extensive sclerosis of the bone-ends Mr. Doolin had decided against operative repair. A celluloid armlet had been made to control the forearm, abolishing the flail movement; and with this the patient's gripping power was definitely improved; he could now lift a chair held out at arm's length.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held in Manchester on Dec. 16th, 1927. An address on the Present Position of Gynæcology was given by Prof. FLETCHER SHAW, the President, who took the chair.

Prof. MILES PHILLIPS (Sheffield) showed a specimen of

Hydrops Tubæ Profluens.

The patient, a 6-para aged 42, complained of attacks of pain in the right lower abdomen, lasting 2 to 7 days at intervals of 3 to 6 weeks. She said that a swelling, about the size of an orange, formed on the right side when the pain was severe, followed by a gush of thin bluish fluid from the vagina when the pain ceased and the swelling disappeared. The same thing occasionally happened on the left side. Nine months after the last confinement, 14 years ago, she had inflammation of the womb and ovaries. Menstruation lasted 2 to 7 days and came on every 24 to 26 days. There had been increased loss during the last 13 years. The patient had a constant greenish-yellow discharge, but no vulvitis. There were indefinite adnexal swellings. At operation a bilateral hydrosalpinx was found, larger on the left side, and the uterus and both appendages were removed. When a piece of silkworm-gut was passed through the uterus into the tubes clear fluid ran out. The cavity of the hydrosalpinges did not communicate with the cystic ovaries.

Prof. ARCHIBALD DONALD said there might be a valve action at the uterine end of the tube. He had never known pus thin enough to escape.—Dr. K. V. BAILEY had seen a patient with a large right hydrosalpinx who had had an intermittent discharge for 18 months—Prof. BLAIR BELL (Liverpool) said that he had noted an intermittent discharge as a rule in malignant disease of the tube.—Dr. J. H. WILLETT (Liverpool) suggested that the rise of tension could sometimes overcome the retention of fluid, and asked if there were any adhesions.—Prof. PHILLIPS, in reply, said there were no adhesions and likened the retention to urinary retention with overflow.

Dr. E. O. CROFT (Leeds) showed a specimen of

Ruptured Isthmial Pregnancy.

The patient was a 2-para aged 40. She had had amenorrhœa for six weeks with prodromal pain for a week or two, and then an acute attack of pain just before admission. On laparotomy the tube was found to be merely attached by the mesosalpinx, having been severed completely from the uterine cornu. The ovum was embedded in the tube just at the junction with the uterus, and when it burst had caused complete detachment of the tube.

The PRESIDENT was surprised to hear of the prodromal pain and asked its cause.—Prof. DONALD thought that the term "burst" was inappropriate. The tube had not been dilated. Rupture was always due to erosion of the tube wall.—Prof. PHILLIPS believed that erosion of the tube took place. He had seen a case in which the hole in the tube was so small that it had been missed at operation and was only found at autopsy.—In reply, Dr. CROFT said that he believed that in most cases of ectopic gestation rupture was due to erosion of the tube wall. The prodromal pain was not severe, and he was unable to account for it.

Dr. CROFT also showed a specimen of

Pseudo-elephantiasis of the Vulva.

A 2-para, aged 22, complained of swelling of the vulva gradually increasing for 12 months and causing inconvenience. The whole vulva was greatly enlarged and thickened, and on the left side a pendulous mass about 5 inches in diameter was hanging from a stalk formed by the labium minus. The Wassermann reaction was negative, and the vulva was completely excised.

Dr. F. H. LACEY said he had seen several cases of pseudo-elephantiasis at a venereal clinic and had cured them with 2 per cent. lactic acid.—Mr. J. E. STACEY (Sheffield) had also seen a number of similar cases, and asked if there was any thickening of the vessels in the specimen to corroborate the theory of a syphilitic ætiology.—Dr. CROFT, in reply, said that no arterio-sclerosis was noted.

Prof. D. DOUGAL read a note on

Three Cases of Hæmatometra Associated with Tuberculosis.

CASE 1.—A woman, aged 37, had been married for seven years. There was primary amenorrhœa till she was 30 and since then a slight loss every five to six weeks. Poor health. As a child she was an in-patient at a children's hospital for a month. The uterus was enlarged to about the size of a four months' pregnancy; the appendages were adherent and panhysterectomy was performed. The uterus had a single cavity containing blood. The left tube was also distended with blood. No communication could be made out between the uterine cavity, the cervical canal, and the right tube. Microscopical examination showed an adenomyomatous condition of the right uterine cornu, and necrotic areas with giant cells.

CASE 2.—Patient, aged 31, married two years. Primary amenorrhœa. "Consumption of the bowels" when a baby. Pain in lower abdomen for ten years. The uterus was enlarged, size of two months' pregnancy, hard and fixed, and there were adhesions in the pelvis. Subtotal hysterec-

tomy with removal of both appendages was performed. The uterus contained two cavities, the larger on the right side and communicating with the right tube, which was closed at its outer end. The left tube was closed except in the interstitial portion, and showed chronic interstitial salpingitis. Microscopically necrotic areas and giant-cells were seen.

CASE 3.—Patient aged 22; single. Primary amenorrhœa. History of phthisis in family. Uterus enlarged and cystic. Had an acute attack of pain while awaiting admission to hospital; treated by appendicectomy. The uterus, removed by subtotal hysterectomy, was asymmetrical, the right half being larger than the left. There were two cavities, the right containing blood and the left containing pus with necrotic material and giant cells.

All three specimens, said Prof. Dougal, showed atresia associated with chronic infection. The question was whether the chronic infection in early life was or was not the cause of maldevelopment. He was inclined to think it was.

Prof. PHILLIPS believed that a condition of obliterative endometritis developed in the region of internal os. He had once reported a hydrometra the size of a seven months' pregnancy due to tuberculosis.

Miss FRANCES IVENS (Liverpool) had had a case of a single woman who developed amenorrhœa after normal menstruation. The uterus reached the umbilicus and was filled with blood. The obstruction was at the external os, and there was no evidence of tubercle. She described another case in which there was caseous material in the cavity. She curetted it away and the patient afterwards menstruated.

Dr. LEITH MURRAY (Liverpool) had had two cases in which he established communication between the hæmatometra and the cervix with a curette.

In reply, Prof. DOUGAL said that none of his specimens showed infection of the lower part of the uterine wall.

MANCHESTER MEDICAL SOCIETY.

AT a meeting of this Society, held on Dec. 7th, 1927, Dr. J. GRAY CLEGG delivered a presidential address on

Ophthalmology in Relation to General Medicine.

The embryology of the eye, he said, is interesting, because it shows a fourfold relation with ectoderm—by the neural ectoderm of the retina, the lens, the conjunctiva, and the skin of the lids. Important structures such as the uveal tract and the cornea are of mesodermic origin. It is not surprising, therefore, that the eye shares with ectodermic and mesodermic organs disturbances of function and nutrition. Again, its anatomical relations, its nerves and blood-vessels, together with the visual pathways, are so complicated that affections of the brain and spinal cord are very apt to set up and produce important signs. Thus, on the one hand, the ophthalmologist must have a wide knowledge of anatomy, physiology, and pathology, and on the other, the physician should be familiar with methods of examining the eye. Every medical man should possess a good lamp, a large lens of 3 inches focal length, a pocket loupe, and an electric ophthalmoscope.

Dr. Clegg went on to describe the signs of retinal arterio-sclerosis and its relation to general arterio-sclerosis. It is recognised, he said, by the "copper-wire" appearance in the early stage, and by the "silver-wire" appearance when the lumen has become completely occluded. Serious cerebral results follow in about 45 per cent. of the cases in which this condition has developed. Amaurosis fugax may result from temporary spastic occlusion of the retinal arteries, but if the blood stream is long stagnant, thrombosis sets in and the result is coagulation-necrosis of the retina. Many cases formerly regarded as embolism of the central retinal artery or one of its branches are really due to this cause. Thrombosis of the retinal vein brings about rapid loss of sight, is evidenced by extensive hæmorrhages, and is often complicated by a secondary glaucoma. The appearances of renal retinitis, said Dr. Clegg, are characteristic, but not pathognomonic; it occurs in one-third to half the cases affected by contracted kidney. In chronic parenchymatous nephritis, the retina is usually unaffected. When renal retinitis is present the blood pressure is almost always high. The condition may occur at any age, whereas arterio-sclerotic retinitis is a disease of old age. Very few cases survive for two years after renal retinitis is discovered, whereas patients with arterio-sclerotic changes may live much longer. In renal cases both eyes are usually affected, but in nearly half the cases of arterio-sclerosis the signs are unilateral. Papill-œdema may occur as the only ocular sign in renal disease, and then differential diagnosis from a cerebral tumour may be difficult; the blood pressure is a distinct guide. It is believed that there are two outstanding factors producing different types of renal retinitis—viz., toxic and vascular—and that in parenchymatous nephritis the toxic element prevails, whereas in the small red kidney the vascular is the more important. There is reason to suppose, Dr. Clegg continued, that the retinitis of diabetes is really due to the disease and not to the concomitant renal condition. Diabetes also affects the pars retinæ iridis, and Harrison Butler states that he has diagnosed diabetes from an œdematous condition of the mamelons, the brown knobs at the pupillary margin of the iris. The lens may become opaque, and there may be rapid changes in its refractive index; in fact, if a form of progressive myopia is noted in an elderly person diabetes is almost always the cause of it. The central scotoma for colour in cases of diabetes, he considers, may really be an effect on the ganglion cells of the macular region, as in tobacco amblyopia.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on Jan. 5th Dr. DONALD HALL, the President, took the chair and Mr. G. W. BERESFORD read a paper on

Gastric Ulcer.

The treatment of duodenal ulcer by gastro-jejunostomy was, he said, more or less generally accepted. Gastric ulceration was a more serious disease, and the treatment presented a difficult problem. The most important contributory causes were unsuitable and irritating foods; perhaps the increased consumption of sugar, leading to gastritis; mental over-exertion and worry, causing an upset in the innervation of the stomach; and focal infection from the teeth or intestinal tract. Acute ulceration was less common than it had been 10 or 12 years ago. The tendency was towards early healing and treatment should be entirely medical; even severe hæmorrhage was not an indication for surgical intervention. Chronic gastric ulcers were generally situated along the lesser curve, probably because of the lymphoid follicles in this region. The main symptoms were periodicity of attacks of epigastric pain and vomiting, coming on one, two, or three hours after food. Radiography was the only certain means of diagnosis. Hæmatemesis was not usual, but was of serious import. Bulmer's recent figures[1] showed that the mortality from hæmatemesis was very high. Medical treatment should be given in all cases except where there was a suspicion of carcinoma, where a course of such treatment had already failed, where there had been an attack of hæmatemesis, or in the presence of perforation or mechanical deformity of pylorus or stomach. In these exceptional cases surgical treatment was to be adopted. Medical treatment should consist of Sippy's diet with a suitable period of rest in bed. The aim of surgical treatment was to remove the chronic infection of the stomach wall and to eliminate free HCl. Gastro-jejunostomy, together with excision or cauterisation of the ulcer, should be adopted for non-adherent ulcers, whilst large and fixed ulcers should be treated by subtotal gastrectomy.

[1] THE LANCET, 1927, ii., 168.

Reviews and Notices of Books.

ANTITUBERCULOSIS VACCINATION.

La vaccination préventive contre la tuberculose par le "B. C. G." By A. CALMETTE, Sub-Director of the Pasteur Institute. With the collaboration of C. GUÉRIN, A. BOQUET, and L. NÈGRE. Paris: Masson et Cie. 1927. Pp. 250. Fr.22.

IN this book Prof. Calmette has brought together the main details of the publications which he and his collaborators have made from time to time in scientific journals, notably the Annals of the Pasteur Institute, dealing with prophylactic vaccination against the tubercle bacillus. These papers cover a long period, and it is no small advantage to have the material, which has hitherto been scattered over many journals, brought together in this way. Of the four parts into which the book is divided, the first is devoted to a summary of the various experiments on antituberculosis vaccination made since the discovery of the bacillus, a good deal of which is reprinted verbatim from Calmette's book on Bacillary Infection. The second part is concerned with the researches made upon cattle, especially young calves, and of the tests made in collaboration with Dr. R. Wilbert on the protection of apes in the tropics by means of prophylactic vaccination. This work is already well known. The third part is a record of laboratory work, cultural, immunological, and histological, with the bovine strain of tubercle bacillus known as B.C.G., first isolated in 1906, and repeatedly subcultured for 13 years on a special medium of glycerinated ox-bile until its virulence was reduced to the point of safety for inoculation work with living cultures. This part of the work is the crux of the whole inquiry. The fourth and last part summarises the results of prophylactic injections of B.C.G. vaccines given to infants since 1921, including the statistics (published in the Annals) for the Seine Inférieur which are the best documented. Most of this work has already been reviewed in our columns during the last two years.[1] The book closes with the reproduction of a set of model forms used in the statistical inquiry work with prophylactic vaccination of infants in France. There is also a serviceable bibliography, but, as too usual in French scientific books, no subject index.

THROAT, NOSE AND EAR.

Diseases of the Throat, Nose and Ear. Second edition. By DAN MCKENZIE, M.D., F.R.C.S.E., Surgeon to the Central London Throat and Ear Hospital. London: William Heinemann (Medical Books), Ltd. 1927. Pp. 677. 45*s.*

THE second edition of this book, which appears seven years after the first, has been very considerably enlarged, and maintains the high standard set by the original work. It is one of the class of large text-books which deals with laryngology and otology in a full and complete manner. It will be valuable to the young specialist wishing to complete his knowledge of these subjects, and useful as a work of reference both to the established oto-laryngologist and to the general practitioner. The general plan of the book remains unaltered in the new edition, but numerous additions have been made. Among these are a series of pictures after Laurens illustrating the operation of laryngectomy; it is perhaps to be regretted that the Glück type of operation, from above downwards, is not described, for it has made considerable headway in this country and possesses several advantages. The limits of laryngology are difficult to define, but it seems inadvisable to discuss goitre in a work of this kind, at any rate unless diseases of the thyroid gland are fully described; we are glad to see that the description and illustrations of the operation of thyroidectomy have been omitted from this edition. The short article on cleft-palate is inadequate, and might equally well have been left out; on the other hand, the final chapter on the lymphatic glands of the neck, with hints on dissections in this region, will be most useful to the laryngologist. The book is well and profusely illustrated, and may be cordially recommended.

[1] THE LANCET, 1926, i., 1030, 1046; and 1927, i., 936.

Handbook of Diseases of the Nose, Throat and Ear. For Students and Practitioners. Second edition. By W. G. SYME, M.D., F.R.F.P. & S. G., F.R.S.E., Surgeon for Diseases of the Throat and Nose, Western Infirmary, Glasgow, and to the Ear, Nose and Throat Hospital, Glasgow. Edinburgh: E. and S. Livingstone. 1927. Pp. 396. 12*s.* 6*d.*

THIS little book has been written primarily for students in the hope of stimulating their interest in the specialty. As Dr. Syme says, students are apt to look upon diseases of the nose, throat and ear as of little importance for the passing of examinations, and it is only when they start practice that they realise how often affections of these regions will engage their attention. Dr. Syme's book will doubtless fulfil its purpose, for it is well written in an interesting manner; the matter is presented on sound lines, and the recommendations on treatment are sensible. In a future edition the author might well consider the advisability of adding more illustrations of pathological conditions, especially in the nose and throat, for pictures are of great assistance to the young practitioner in recognising lesions.

Diseases of the Nose, Throat and Ear. For Practitioners and Students. Second edition. Edited by A. LOGAN TURNER, M.D., LL.D., F.R.C.S.E., Consulting Surgeon, Ear and Throat Department, Royal Infirmary, Edinburgh. Bristol: John Wright and Sons, Ltd. 1927. Pp. 440. 20*s.*

THE history of this text-book is of interest. It has been evolved from a much smaller text-book written by Dr. W. G. Porter in 1912, a second edition of which was revised and published by Dr. P. McBride during the author's absence on active service. Dr., then Major, Porter, D.S.O., was killed in action in 1917, and his friends and colleagues in Edinburgh, headed by Dr. Logan Turner, revised a third edition as a labour of love and a tribute to his memory. This was perpetuated in a larger work published, under the editorship of Dr. Logan Turner, in 1924, which has now reached a second edition. The section on diseases of the nose is under the joint authorship of Dr. Logan Turner and Mr. W. T. Gardiner, the former being responsible also for that on the paranasal sinuses. Mr. Douglas Guthrie deals with the pharynx and nasopharynx, Mr. J. D. Lithgow with the larynx, Mr. G. E. Martin with endoscopy, and Mr. J. S. Fraser with diseases of the ear. The work is an important one, and gives an admirably clear and concise account of diseases of the specialty. Since it is written primarily for students and practitioners, methods of examination are carefully detailed, but the larger operations are not fully described. The numerous excellent illustrations add to the value of the book.

Practical Guide to Diseases of the Throat, Nose and Ear. For Senior Students and Junior Practitioners. Fifth edition. By WILLIAM LAMB, M.D., C.M. Edin., M.R.C.P. Lond., Consulting Surgeon, Birmingham Ear and Throat Hospital. Revised by FREDERICK W. SYDENHAM, M.D., C.M. Edin., F.R.C.S.E., D.P.H. Vict., Honorary Surgeon, Birmingham Ear and Throat Hospital. London: Baillière, Tindall and Cox. 1927. Pp. 450. 12*s.* 6*d.*

THE arrangement of this little book is somewhat unusual; the method has been to devote a chapter

to examination of a region, such as the nose, followed by a chapter on its treatment. The mouth and pharynx are thus dealt with, and then in turn the nose, the larynx, and the ear. A disadvantage of this method is that a series of diseases is described in one chapter and the treatment appropriate to each discussed in another; this leads to confusion and overlapping occurs which would be avoided with a simpler arrangement. A paragraph on congenital laryngeal stridor on p. 253 appears to have become mixed up with a description of tracheotomy, which latter has no beginning and does not appear in the index. The concluding chapter is devoted to Dr. Sydenham's experiments on radiography of the skull, with 29 skiagraphs, mostly of dry specimens; this chapter would form a monograph on some aspects of the technique of radiography, but is out of place in a short guide to oto-laryngology. In spite of these defects the book contains a good deal of useful information and much sound advice.

ACTINOTHERAPY.

Ultra-violet Rays in the Treatment and Cure of Disease. Third edition. By PERCY HALL, M.R.C.S. Eng. London: William Heinemann (Medical Books), Ltd. 1927. Pp. 236. 12*s.* 6*d.*

THERE is still a widespread impression that treatment by ultra-violet light is a simple and harmless proceeding, and much ignorance as to which of the various forms of lamp now on the market do actually give off ultra-violet rays. Dr. Hall's book, which passed rapidly through two editions in 1924–25, was published with the definite object of combating erroneous views. The present edition has been largely rewritten and has greatly increased in size. In its present form it should be useful to the many doctors who are taking up this form of therapy. Curiously enough, however, one of the main questions upon which they might reasonably look for some information—namely, dosage—here receives but scanty attention. The author is content simply to say (p. 127): "Each patient is a law unto himself, and every case requires careful individual consideration, and must be judged on its own merits. This is the only safe and scientific method of estimating dosage in actinotherapy." But this statement is not very helpful to anyone seeking information on how to measure the yield of radiation from the source he is using or what doses are generally suitable in certain varieties of disease. Dr. Hall states that results are occasionally gained by the use of the tungsten arc, which cannot be achieved with other types of lamp, a fact which he ascribes to the richness in quality and quantity of its emanations (we must ask, in passing, is radiation an emanation?), and he suggests that the tungsten spectrum includes wave-lengths whose presence cannot be detected by any modern spectroscope or other instrument. He is led to assume that the ultra-violet rays of the fifth octave are not less, but more, penetrating than those of the first octave. In making such assumptions as these he seems to overlook the vacuum spectrometer as an instrument of precision.

BASAL METABOLISM.

Basal Metabolism in Health and Disease. Second edition. By EUGENE F. DUBOIS, M.D., Medical Director, Russell Sage Institute of Pathology; Associate Professor of Medicine, Cornell University Medical College. London: Baillière, Tindall and Cox. 1927. Pp. 431. 22*s.* 6*d.*

THE estimation of basal metabolism has become of increasing importance during the last few years, both in research and in practical medicine. Dr. Dubois, the second edition of whose book has been revised and brought up to date, approaches the subject in a manner interesting both to clinician and physiologist. The first part deals with normal metabolism. With regard to the choice of apparatus, the author points out that many types are accurate and efficient, and errors lie more often in the operator than in the apparatus. Every worker must attain complete mastery of his own instrument, and be aware of its sources of error; this implies that he must study a large number of normal individuals before investigating the abnormal. The Benedict unit, Zuntz-Geppert apparatus, Tissot spirometer, and Douglas bag, in experienced hands, give identical results, which in turn agree with those obtained in a respiration calorimeter. In this edition the chapter on the estimation of the surface area of the body has been rewritten, and the results obtained by different methods are compared. The influence of age, growth, and diet on normal metabolisms are also discussed. The difficulties in the selection of normal standards for comparison are great; every piece of work involves the study, with exactly the same technique, of a large number of normal controls in order to ascertain directly the correct standards for the given conditions.

The second part of the book deals with basal metabolism in disease and contains chapters on undernutrition, obesity, disease of the thyroid and ductless glands, cardiac and renal disease, fever, nervous diseases, and water metabolism. To the clinician the chapter on thyroid diseases is of most interest, for here basal metabolism tests have the greatest practical value. In discussing their reliability the author points out that although such tests form the best available measure of activity in the thyroid gland, they must not be accepted blindly. For example, emaciation and inanition in hyperthyroidism may counteract a raised metabolism and make it appear normal. In spite of such difficulties, basal metabolism tests are shown to be of great value, especially in estimating progress before and after operation or during iodine or other treatment. Throughout the book frequent references are made to original work in sufficient detail to enable the reader to weigh evidence himself and form his own conclusions on controversial points.

The book is well indexed and illustrated, and supplies a full and valuable summary of our present knowledge of basal metabolism.

Le métabolisme basal. Les applications en clinique. Par CLAUDE GAUTIER, Médecin des Hôpitaux de Paris; et RENÉ WOLFF, Chef de Laboratoire adjoint à la Faculté de Médecine de Paris. Paris: Gaston Doin et Cie. 1928. Pp. 172. Fr.15.

THIS little book deals with the subject of metabolism from the point of view of the clinician and discusses the practical value of basal metabolism tests in diagnosis and prognosis. The first and larger part deals with metabolism in health; this part includes an outline of the principles of the production and conservation of animal heat and the effects of muscular work and digestive processes on heat production. The constancy of the minimal heat production in the same and different normal subjects is discussed, with the allowance to be made for variations in weight, height, age, and sex. Details of laboratory technique are not given, but the principles of direct and indirect calorimetry are outlined. A short chapter is devoted to the effects of drugs on basal metabolism in normal people. The second part deals with metabolism in disease. The authors consider the basal metabolism test is of greatest practical value in diseases of the endocrine organs and especially of the thyroid gland. In these it is very useful in mild cases of hyperthyroidism and hypothyroidism when clinical evidence is insufficient. It is valuable in estimating the course of these conditions so that treatment can be more accurately regulated. In the diagnosis of certain disorders of the pituitary gland, the genital glands, and in diabetes mellitus the test also finds a place. The book concludes with a bibliography of the more important literature on the subject. For the clinician it forms a useful introduction to the modern studies of basal metabolism.

ABDOMINAL SURGERY.

Surgical Diseases of the Gall-bladder, Liver and Pancreas, and their Treatment. By MOSES BEHREND, A.M., M.D., F.A.C.S., Attending Surgeon to the Jewish and Mount Sinai and Northern Liberties Hospitals; Instructor in Anatomy, Jefferson Medical College. Philadelphia: F. A. Davis Company. 1927. Pp. 278. $4.

OF this small book 117 pages are devoted to the anatomy and physiology of the liver and pancreas. There follows a chapter upon pathology. Neither in this chapter, nor in the rest of the book, is any new light thrown upon the subject, nor is the work which has been done in the past systematically reviewed. The author emphasises his own custom of removing the gall-bladder only after exposing to view the structures in the right margin of the gastro-hepatic omentum, but is unfair to the majority of surgeons (at least English and European ones) when he states, p. 176, "The operation of cholecystectomy is almost invariably performed by most surgeons within the gastro-hepatic omentum by the so-called 'closed' method," and "little cognizance of the proper method of removal of the gall-bladder" (meaning dissection of the cystic and bile-ducts as the first step) "has been taken." There are no statistics of the author's own results (though some interesting case-histories are told) and many omissions. The accounts of the experience of other surgeons are inadequate.

NOTES ON CLINICAL LABORATORY METHODS.

By the Standing Committee on Laboratory Methods of the University of Glasgow. John Smith and Son (Glasgow), Ltd. 1927. Pp. 66. 2*s*.

THIS book represents the result of the labours of a committee appointed by the University of Glasgow to secure uniformity in the laboratory methods used in the clinical teaching in the department of medicine of the University. The field covered is equivalent to side room testing as usually carried out by students of medicine. In addition, much useful information is included as to the correct method for the collection and transmission of specimens requiring somewhat more elaborate methods of investigation than those included in the book. The book is well suited to its purpose, and will also prove useful to medical men who wish to perform for themselves the simpler methods of laboratory investigations.

PHYSICAL DIAGNOSIS.

Ninth edition, revised and enlarged. By RICHARD E. CABOT, M.D., Professor of Medicine in Harvard University; formerly Chief of the West Medical Service at the Massachusetts General Hospital. London: Baillière, Tindall and Cox. 1927. Pp. 536. 25*s*.

As an aid to diagnosis in practice this book is valuable, because the author has only included technique which he himself has tested by long trial and found reliable enough to recommend to others. Useful methods of examination are thus not obscured by others which, though they have long since fallen into disrepute, still lumber up the pages of many otherwise trustworthy books. Many time-worn but useless diagnostic "signs" are not even mentioned. Of Kernig's sign the author says: "This reflex is of some value in the diagnosis of meningitis, though allowance must be made for the stiffness of old age. The sign is by no means pathognomonic, but is of some confirmatory value." Such a statement puts the test in its proper place. The proportionate value to be placed on positive and negative findings is stressed throughout the book. Methods of examination of the central nervous system are only dealt with briefly. The exact localisation of lesions is not attempted, the reader being referred to larger works on the subject. The sections on tuberculosis, the blood, and cardiovascular disease have been revised. Reference numbers are included to the Gamble-Cabot cardiac diagnosis records, a set of phonographic records taken of normal heart sounds, the third heart sound, and various types of murmur and irregularity. The illustrations are clear, and these by themselves are of value in diagnosis.

This new edition should be welcomed by students and physicians.

CHEMISTRY OF FAMILIAR THINGS.

Fifth edition, revised and enlarged. By SAMUEL SCHMUCKER SADTLER. London and Philadelphia: J. B. Lippincott Company. 1927. Pp. 336. $3.

THIS is a useful book, for its main object—namely, to point out how many of the things which the average person sees about him are really a demonstration of chemistry—is well carried out. We have here, in fact, a synopsis of the most important recent developments related to chemistry as that science enters daily life, and the unscientific reader is thus enabled to obtain the sort of accurate knowledge which should enable him to understand the forces involved in phenomena with whose externals he is perfectly familiar. The subjects dealt with, after a brief outline of the divisions under which the workings of chemistry manifest themselves, include light and heat, air and water, various metals, soil, food, and the application of chemistry to the several arts and manufactures. The book is already widely appreciated, as its regular reissue testifies, and a chapter entitled Chemistry since the War brings it up to date.

THE EARLIER INHABITANTS OF LONDON.

By Prof. F. G. PARSONS, F.R.C.S., F.S.A. London: Cecil Palmer. 1927. Pp. 240. 10*s*. 6*d*.

THIS book is a delightful combination of osteology, archæology, and history, and for Londoners in particular it will have great attractions. It is the result of many years' work on the physical anthropology of the inhabitants of this island, and the author wisely warns us that the historian should understand clearly how little as well as how much help he may expect from anthropology in its present state. According to Prof. Parsons, there has been no continuous occupation of London since the days of the old Stone Age, the present contours of gravel and river drift having been deposited since that date, while he points to the geological estimate that the twin hills which form the site of the city rose for the first time from the river bed about 3000 B.C. At this date probably the surrounding country, densely afforested, was largely occupied by a race which had migrated slowly westward along both shores of the Mediterranean, occupying the various peninsulars, and getting as far as Great Britain by turning up through Spain. The London history of paleolithic and neolithic man is set out mainly in terms of the skeletons and especially the skulls found in the "long barrows"—the earliest method of sepulture—and the next irruption from the continent appears to have occurred a thousand years later. The origin of this is unknown, but the migrants were tall and round-headed, and their influence upon the population is thought to have been slight. On the arrival of the Nordics, however, about 600 B.C., real and obvious changes were produced in the racial make-up, owing in particular to the difference in pigmentation and the well-shaped nose of the Nordic race. While a gradual evolution was thus taking place among the earlier inhabitants of our islands, London for practical purposes was not existent. It did not start as a city until after the Roman invasion, and has no record until it became a suitable port for the city of Verulam, which stood a few miles from St. Albans. From this point onwards the reader is on more familiar ground and will enjoy Prof. Parsons's epitome of what may be learned from nature and physical anthropology concerning the characteristics of the various races which lived around the site of London before any settlement was effected, as of those who were the first inhabitants.

THE LANCET.

LONDON: SATURDAY, JANUARY 14, 1928.

THE TREATMENT OF THE MALARIAS.

QUININE has certain disadvantages. It is expensive, it has a bitter taste, large doses are often required, and it does not at once remove from the cutaneous circulation the gametocytes which infect anopheles. Hence has arisen a search for substitutes, of which plasmochin is a recent example. More than a year has elapsed since the first full reports on this synthetic drug were published by MÜHLENS and his collaborators,[1] and enough observations have accumulated to draw some fairly sure conclusions about its uses and dangers. That both exist cannot be doubted. Even in the original communication [1] SIOLI reported that cyanosis and jaundice sometimes appeared if the daily dose of 0·08 g. (taken in three-day courses, with three-day intervals, for two to three weeks) was raised to more than 0·1 g. Indeed, one man who took 0·08 g. daily for eight days developed hepatic pain, ashen cyanosis, collapse on exertion, and chocolate-coloured blood, methæmoglobinæmia and methæmoglobinuria both being present. MÜHLENS, who laid chief stress on the drug's destructive action on crescents, at that time dismissed cyanosis, occurring with daily doses of less than 1·0 g., as an unpleasant vasomotor and neuropathic effect. That the cyanosis of plasmochin-administration is due to methæmoglobinæmia was, however, demonstrated spectroscopically by MANSON-BAHR before the Royal Society of Tropical Medicine and Hygiene last year. FISCHER and WEISE,[2] examining the blood of 26 patients receiving 0·05 to 0·1 g. daily, found methæmoglobinæmia in 25, the percentage ranging from 4 to 20. Percentages of more than 4 were found in 10 out of 13 cases on a daily dose of 0·03 g., but were deemed harmless; the higher percentage occurred on a dose of 0·1 g., cyanosis being so great that quinine had to be substituted for plasmochin. Nevertheless, MÜHLENS, although he now admits that plasmochin causes methæmoglobinæmia, still holds that with a daily dose of 0·01 g. per 10 kg. of body-weight (or 0·07 g. for a man of ordinary size) there is no more risk with this drug than with quinine or salvarsan. This view cannot be accepted. EISELSBERG [3] reports upon a medical man receiving this dosage (10 tablets, or 0·2 g. in about three days) who collapsed with methæmoglobinæmia, fever, vomiting, and great hepatic tenderness. He had an enlarged spleen, the red corpuscles were reduced to 1,550,000 per c.mm., the serum was tinged with bilirubin, and his life was only saved by blood transfusion.

If, as seems necessary, the dosage of plasmochin must for safety be reduced to 0·03 g. daily in accordance with the experience of SIOLI and EISELSBERG and the work of FISCHER and WEISE, the results obtained by those who have used higher doses must be disregarded. And they comprise almost the whole experience with the drug. FISCHER and WEISE, however, have reported on the effects of the smaller doses and found that so far from causing the disappearance from the cutaneous blood of schizonts of subtertian malaria, the plasmochin acted rather as a provocative; they describe multiplication of subtertian rings and precipitation of an acute attack, so that recourse to quinine was needed to cut it short. With the reduced dosage it was noted that crescents disappeared from the cutaneous circulation always within 10 and usually within five or six days. Unfortunately, however, the action of plasmochin on crescents cannot be depended on. Their disappearance may be merely temporary, and BÄRMANN and SMITS [4] report that under four plasmochin tablets (0·08 g.) daily they have followed a case in which crescents actually appeared for the first time in the cutaneous blood after administration of the drug had continued for five days. It may be mentioned that the figures illustrating the degeneration of crescents after exhibition of plasmochin obtained by MANSON-BAHR [5] followed daily doses two to four times as large as those which the observations we have quoted seem to permit for the future. On both sides of the Atlantic there have been deaths which it is unreasonable not to attribute to plasmochin, and the conclusion seems inevitable that results obtained with the dosage advised and in general use must be discounted, and that the whole matter must be reinvestigated, using the quantities which FISCHER and WEISE suggest. In weighing the evidence one further source of error should also be borne in mind. Plasmochin is issued in tablets of two kinds: first those containing merely 0·02 g. of plasmochin, and secondly those containing 0·01 g. of plasmochin plus 0·125 g. of quinine, known as plasmochin-compound. In reports on the effect of plasmochin-compound—and they are numerous—too little stress may be laid on the fact that the man who is taking the advised dose of 0·08 g. of plasmochin is also taking, anonymously, grs. 15 of quinine.

These and other investigations, although suggestive, do not permit the conclusion that any known drug is capable of replacing the crystallisable alkaloids of cinchona in the treatment of malaria. Stovarsol, for example, is without effect on the quartan and subtertian forms, and cannot be relied on to banish even the tertian parasite more than temporarily. It is not to be expected, either, that these new drugs will lower the cost of malarial treatment—a matter of extreme importance to the many millions of impoverished persons implicated. How, then, can this cheapening be brought about? The present position appears to be as follows. There is no shortage of cinchona-bark or of quinine as bark, but not enough quinine is being extracted in Java to meet the world demand, of which Java supplies about nine-tenths; there is merely a shortage of quinine at a price which would make it available for general tropical use. Only in Java have the quinine-rich species of tree flourished under cultivation; the high quinine-content of these trees is a result of careful selection, and so long as quinine is used in malaria to the exclusion of the other crystallisable cinchona alkaloids, so long must this state of affairs continue, unless the varieties of cinchona which are rich in quinine can be cultivated in their natural home, South America. As DOMÍNQUEZ [6] urges, from the Argentine, this must surely be merely a matter of trial. It is now established, however, that quinine holds no antimalarial pre-eminence among the crystallisable cinchona alkaloids, and it is well known that the hardy *Cinchona succirubra*, which can be fairly widely cultivated, produces a reasonably high general alkaloidal, although a relatively low quinine content. The mixed alkaloids have been issued for many years in India and the Federated Malay States under the

[1] Beiheft zu Arch. für Schiffs- und Trop.-Hyg., 1926, xxx., 305.
[2] Deut. Med. Woch., 1927, liii., 1380 and 1421.
[3] Wien. klin. Woch., 1927, xl., 525.
[4] Geneesk. Tijdschr. van Nederl.-Indië, 1927, lxvii., 151.
[5] THE LANCET, Jan. 7th, p. 25.
[6] Boll. del Inst. Clin. Quir., 1927, iii., Paludismo.

name cinchona-febrifuge, and the only real difficulty in connexion with this remedy has been to devise some practical standard of purity, each batch varying in composition, and human nature being what it often is. Steps to safeguard users appear to be reaching a practical end in Malaya and Madras. They will be watched with sympathy and interest, and when this problem is solved, as surely it must be, there will be justification for cultivating the hardier cinchonas on a wide enough scale to meet the demands of our humanity.

PROBLEMS OF CEREBELLAR FUNCTION.

ONE of the topics set for discussion at the meeting last summer of the American Neurological Association and the Neurological Section of the Royal Society of Medicine was concerned with cerebellar functions, and the contributions then made by both American and English speakers have been published in a recent issue of *Brain*. Seeing that such communications have been based in some instances on original experimental work, while others can fairly be regarded as summarising what is known of the subject, and all, of course, were "up to date," the general reader may naturally and properly turn to them for the latest information on this highly controversial question. That discussions on cerebellar function have often been perversely successful in arousing controversy can scarcely be denied—a sure sign of continuing failure to solve the problem in a way commending itself to those whose opinions deserve respect. The cerebellum is a large organ anatomically, and is connected with the rest of the neuraxis by numerous tracts, entering and leaving, whose courses have been traced definitely enough. Its cortex is histologically complex yet remarkably uniform, in this respect contrasting materially with that of the cerebral hemispheres; the latter can be mapped out into 40 or 50 areas differing from each other morphologically in greater or less degree. This fact of itself can be taken justifiably to indicate relatively simple—in the sense of unitary or at least mainly undifferentiated—function for the organ. Its physiology has been studied by hosts of experimenters along the accepted lines of excitation and destruction, without, however, the attainment of finality. Stimulation of the cerebellar cortex, and of its enclosed nuclei, has in some hands resulted in the appearance of movements, on the whole of a rather tonic as opposed to phasic type. The late Sir VICTOR HORSLEY was one of those entirely convinced of the genuineness of experimental excitation of movements from the cerebellum, and at the Congress referred to above Dr. A. MUSSON substantiated the contention as the result of elaborate experiments of his own. Doubtless the matter of the interpretation of such motor phenomena requires attention. Because a given fibre-system or ganglionic collection is electrically excitable into action rendered visible by movement of the animal operated on, it does not follow this is its sole function in the intact animal; it may form but a part of its normal function, or, alternatively, it may represent only a share taken in the function of an anatomically larger and more complex system which normally acts as a whole. The method of destruction of given regions of the cerebellar cortex, or of its nuclei, or of extirpation of half or the whole of the organ, serves usefully to enable anatomical connexions to be studied by degeneration technique, but in regard to function it is essentially a negative procedure; for what the experimentalist does is in reality to study what functions are left. How unsatisfactory such a method can become scarcely needs emphasising. Thus while excitation supplies comparatively little direct evidence of cerebellar function, extirpation or destruction forms as it were an inverted approach to the problem.

Since the earlier researches of Sir CHARLES SHERRINGTON there has developed an increasing tendency on the part of some neurophysiologists to utilise spinal, decerebrate, or thalamic animals for the determination and analysis of specific functions referable to one or other part or system of such of the "preparation" as is left. That is to say, to investigate spinal functions the spinal cord is isolated; for mesencephalo-cerebello-ponto-spinal functions the animal is decerebrated, and so on. The procedure has been carried to its limits in the fine work of the late Prof. R. MAGNUS and his collaborators, and has been instrumental in enabling them to fix the functions of mechanisms concerned in equilibration and posture, and individualise the parts played by organs such as the labyrinths, otoliths, eyes, and neck in maintenance of the erect position. In some respects, nevertheless, decerebrate technique can be misleading, especially if conclusions derived therefrom are applied to intact organisms without due attention to results obtained by other methods. Up to a quite recent period cerebellar function was thought to consist largely in the regulation of muscle tonus and the coördination of (unconscious) tonic or postural motor activities. Now the decerebrate "preparation," consisting of lower midbrain, cerebellum, pons, medulla and cord exhibits in a striking form all the phenomena of reflex postural action and integrity of muscle tone as well, but a conclusion reached by several experimenters (now of an older generation) that the cerebellum is not essential for these reactions has been amply corroborated by the researches of Drs. L. J. POLLOCK and L. DAVIS, reported at the Congress. They have demonstrated that the influence of that organ on the reflex activities of the decerebrate animal is practically nil; if anything, it rather inhibits these than otherwise. These results appear to suggest that the functions just mentioned will have to be discarded from the totality ascribed to that organ. Yet in point of fact the question of their interpretation is left untouched. How far are they applicable to the intact animal, and to man?

This aspect of the general problem remains to be examined, but it cannot be said we have as yet evolved comprehensive principles for guidance. We do know that integration of diverse functions must take place constantly at different physiological levels, whatever the individual parts responsible for portions of them. The large size of the cerebellum, its prominence, its development throughout the animal kingdom, and its relative architectonic uniformity, are such as to render probable the attribution to it of an ordinary, essential, universal function, a function that neither is subtle nor requires much differentiation; and as no line of evidence, clinical or experimental, points to this belonging to the order of sensation, by exclusion and for other obvious reasons we can take it to be of the motor series. At this stage resort to the conclusions derived from the accumulation of clinico-pathological data, over a very long period indeed, justifies the assertion that a part, possibly the major part, of cerebellar activity in the normal person is concerned with the function of coördination of movement, but not with its innervation. In other words, the rôle is subsidiary to that of the cerebral cortex, so that when it is diseased substitutive action in respect of the cerebrum is to some extent realised. At the same

time, it is incomplete. The methods of the clinician lead him to argue that defect of cerebellar function is exteriorised by defect of coördination or of timing, so that while movement-innervation remains ataxia accompanies it. At present the indications are that the interrelation of cerebrum and cerebellum is more intimate, less readily severed but more revealing when this occurs, than that of cerebellum and other prespinal but postmesencephalic mechanisms. Should this view receive further support, then we may be prepared to find in cerebrum and cerebellum a physiological couple, from the standpoint of motility, concerned more with phasic than with static activity. The latter of the two will be linked more to the new than to the old motor system.

Some may be led impatiently to express dissatisfaction with present-day attainments in regard to knowledge of cerebellar function. That many obscurities remain after periodic assertions of a confident character concerning it seems regrettable. Yet the explanation is comparatively simple. The complexities of the problem have been too often neglected in the desire to obtain a cerebellar formulation of clinical worth. Progress is slow, and always outstripped by hypothesis and speculation, but abandonment of views that can no longer be sustained is in reality a sign of its existence.

THE OPTICAL PRACTITIONERS BILL.

THE Report of the Committee on the Optical Practitioners Bill, a summary of which appeared in our last issue, gives no support to the hopes of that large number of opticians who desire to obtain a definite status as State-sanctioned prescribers of spectacles. The Report fully recognises the prima facie reasonableness of their claim on the assumption that such work can be efficiently performed without the possession of a medical training. The increased demand for optical treatment has led bodies such as the Spectacle Makers Company and the British Optical Association to raise the standard of optical practice, and there is no need to question the good work done by many well-qualified opticians in this connexion. On the other hand, says the Report, it has brought into existence a considerable number of practitioners, the reality of whose qualification does not always correspond to the high-sounding titles which they assume. If so is it not right, the supporters of the Bill ask, that a State register should be set up so that those opticians who are qualified in this dubious way should be easily distinguishable by the public from well-trained men? It is important that the public should realise the grounds on which, in spite of the above considerations, the committee have decisively rejected the claim to registration as inadmissible in the interests of the public. In the first place, it would be impracticable to omit from the proposed register the names of those opticians who, though without special qualification, have been conducting bona fide sight-testing businesses for years. If a register is to be set up at all it would involve the admission of practically all existing opticians. A stronger objection to the proposal is that in many cases defective vision is merely a symptom of disease either of the eye itself or manifesting itself in the eye, and in some cases where vision may be brought up to normal there may still be evidence in the eye of disease which might pass undetected by anyone not trained in the same way as the ophthalmic surgeon is trained. The contention of the medical profession has always been that the prescription of glasses is a part of the medical treatment of the eyes, and no one should attempt to do it who has not had a complete medical training, as well as a special training in ophthalmology. The optician contends that he is trained by special courses at a "refraction hospital" to examine the fundus of the eye sufficiently to distinguish a normal from an abnormal fundus, and that all cases coming under the latter category would be referred by him to an ophthalmic surgeon. In this connexion we may remark that it is by no means so easy to distinguish a normal from an abnormal fundus as some would suppose. Opaque nerve-fibres, for instance, present such a striking picture that not even a tyro could miss it. Yet it has absolutely no pathological significance. On the other hand, slight changes at the macula are of grave importance, but may be so difficult to detect that in some cases few ophthalmic surgeons would care to pronounce an opinion as to their nature without the employment of a mydriatic. This matter of drugs is a further complication. There is a real danger in their use, a fact which is recognised by the opticians. The Spectacle Makers Company, for instance, have for many years exacted as a condition of granting their diploma an undertaking against the use of drugs in any form. Yet a considerable proportion of refraction cases are complicated by conditions of the lids calling for the use of remedies other than or in addition to suitable glasses. For purposes of refraction alone drugs are often essential, especially in the case of children. The dangers of the local use of atropine by any but skilled hands are well known.

The plea of the opticians that there are not enough ophthalmic surgeons to do the work is duly considered in the Report, the opinion being expressed that the demand will create the supply, and is, in fact, creating it. The present system, by which some 800 ophthalmic surgeons, or practitioners with a special knowledge of the eye, have undertaken to see insured patients in their consulting-rooms for a one-guinea fee, is working well as far as those societies are concerned who allow their members to have the benefit of it. Many societies, however, still refer their members to prescribing opticians, presumably in order to save the surgeon's fee. From the society's point of view this is an economy, but from the patient's point of view the economy may often be a false one. What he asks for is the best advice that he can possibly get. We know that the average hospital patient is exceedingly particular about the appearance of his or her spectacles, and is often willing to pay considerably more than a guinea for appearance alone. The same, we believe, is true of the average panel patient. If these people understand that an attempt is being made to put them off with a form of treatment which is not the best attainable they will not be satisfied. At least they should have a chance of supplementing the "optical benefit" allowed by their societies out of their own pockets if the benefit does not suffice to pay the fee. This question of fee appears to have given some trouble to the committee. The subject of clinics is hinted at in their Report, but we are by no means sure that this is a desirable way of getting over the difficulty. It is not suggested, we understand, that clinics should be established in which the surgeon's fee per patient should be less than half a guinea. If he is to do a complete refraction for this fee, together with a thorough examination of the eyes, would he not expect that premises, apparatus, lighting, and clerical assistance should be provided for him just as they are at a hospital, and, if so, how much would the saving amount to? Moreover, in our view it is essential that the principle of free choice of specialist for the patient should be maintained, and it is hard to see how any scheme of clinics could be reconciled with it. We do not say that a scheme of clinics staffed by ophthalmic specialists such as the British Medical Association has recently been discussing is to be absolutely rejected, but we believe that with the existence of ophthalmic hospitals offering free treatment for the poor on the one hand, and the guinea fee scheme for insured patients on the other, the scope of its utility must be limited.

What, then, is to become of the prescribing optician? The Report assumes that numbers of the population will resort to opticians in the future as they have done in the past, and they opine that even without a register a healthy competition between medical men and opticians may raise the standard in both classes of practice. They further suggest that these two sets of practitioners might act in collaboration in refraction work, presumably at clinics, but as long as there is rivalry between the two classes closer collaboration will be difficult than that which takes place when each has a defined task—the medical man prescribing glasses, the optician making them. The advances in the skill of the dispensing optician of late years have been marked. He is faced with such problems as the production of light lenses of a high power, the best forms of bifocal glasses, and the decentering necessary when prisms are prescribed. The amount of technical attainment which these things demand is great. There is at present no demand for the State registration of dispensing opticians, pledged not to prescribe. If it should come there would be no opposition to it on the part of the medical profession.

THE LONDON FLOODS.

HUNTING for scapegoats will not bring back to life the victims of the recent London floods, but something must be done to fix responsibility. The Government departments concerned include, it seems, the Ministries of Health and Agriculture, the Office of Works and the Board of Trade, and the public will be particularly interested to know what measure of coördination existed. Already the Thames Conservancy, which has no jurisdiction below Teddington, has officially laid the blame upon the lower river, the flood water from the upper Thames being apparently negligible. The Port of London Authority will doubtless return the compliment. These two bodies between them know what volume of water passes up and down. The Board of Trade, which issues such admirable advice as to coastal weather, is presumably aware if high seas are running at the mouth of the Thames. The river police cannot be entirely ignorant of the state of the tides. The metropolitan borough officials have means of knowing what areas lie below the threatened levels. If all these bodies agree that the recent flooding was inevitable, what measures were taken to warn and evacuate the occupiers of endangered premises? Even the Victoria Embankment is not an inviolable institution; its engineers may have thought that they built with a margin of absolute safety, yet the Thames surmounted it for a distance of over 100 yards near the Temple Station in 1921. Many buildings which have suffered were erected before the embankment was made; others—for example, the basements of the Tate Gallery—have been erected on plans submitted and passed in quite recent years. The practice of allowing human beings to sleep in underground rooms close to the river level receives striking condemnation. There will be many issues to be examined at whatever form of public inquiry is set up. Meanwhile the coroners' inquests may elicit information, and especially as to the condition of any weak spots in riverside retaining walls. Under the 1925 Act a single inquest can be held where deaths "appear to have been caused by the same accident or occurrence," although the bodies lie in different coroners' jurisdictions. This course has rightly not been taken in respect of the victims of the flood; each locality ought to have the fullest opportunity of producing its own evidence before its own tribunal, which best knows the local conditions.

ROYAL MICROSCOPICAL SOCIETY.—The annual meeting of this society will be held on Wednesday, Jan. 18th, at 7.45 P.M., at 20, Hanover-square, London, W. 1. At 8 P.M. Dr. James A. Murray, F.R.S., will deliver the Presidential Address on Staining and Structure.

Annotations.

"Ne quid nimis."

THE FATE OF MENTALLY DEFECTIVE CHILDREN.

DURING the last quarter of a century over 4000 Birmingham children have been pupils at special schools for mental defectives, and a remarkable survey of their after-history has now been issued.[1] Of 4052 whose career was investigated, 239 are dead; 564 have been lost sight of; 1618 are doing remunerative work, their average wage being 25*s.* 6*d* a week; 18 are soldiers; 174 were transferred to ordinary elementary schools; 34 were transferred to other schools, mainly industrial or schools for the deaf; 405 are at institutions for the mentally defective, including 36 in asylums; 156 are in other institutions, chiefly those of the poor-law; 269 were dismissed from their special schools on account of physical or mental disability; 536 are at home and said to be useful there; and 39 are at home and said to be useless. Excluding those who died or are untraced, these children may be tentatively assigned to three main groups:—

1. Those who seem to be socially efficient and self-supporting to a reasonable degree. Among these may be placed the 1618 paid workers and the 18 soldiers. It also seems reasonable to include the 174 children transferred to elementary schools, together with some—say 20—of those who were sent on to other special schools, and perhaps half of the 536 who are described as "useful at home." This makes a total of 2098.

2. Those suited for institutional care, including the 405 in institutions for mental defectives, the 156 in other institutions, the 269 dismissed as incapable from special schools, and the 39 useless at home. In this group the total would be 869.

3. Those that might be left at home under supervision, although socially inefficient. This would include the remaining half of those who are "useful at home" and the remaining 14 of those transferred to special schools, and gives a total of 282.

Thus of the 3249 cases definitely ascertained 2098 (64 per cent.) are presumably satisfactory; 869 (26 per cent.) are only suitable for institutional care; and 282 (9 per cent.) belong to the intermediate class and might remain at home under supervision. These figures reflect credit on the training provided in these special schools and on the measures of after-care.

The above grouping is not suggested by the Birmingham After-care Subcommittee and some comments and qualifications are necessary. Of the 1618 children doing remunerative work a few are earning wages that would not by any means support them, and it is surprising to find that only 12 are engaged in bootwork and 14 in woodwork which are the main handicrafts taught in the special schools. The better children, it appears, are allowed to leave at the age of 14, and probably the results would be more satisfactory if the later years were devoted to elementary vocational training. In Group 2 there are 156 persons in institutions other than those for the mentally defective, besides 36 in asylums; it would be decidedly better if all these defectives were in the institutions provided specially for them. As regards Group 3 it would be an advantage if as many as possible of the defectives living at home could attend occupation centres; at present the number who do so is only 35. It would, of course, involve some trouble and expenditure on the establishment of more centres and the provision of guides, but (as the report states) "the benefits to the child and the home are very great, and the centres provide excellent means of supervision and elementary training for certain children who would otherwise need institutional care."

The after-history of the defectives themselves is not the only thing that has been studied, and the report

[1] Report of the Birmingham After-care Subcommittee, issued from the Offices of the Education Committee, Birmingham.

contains notes on the condition of 156 children, of 5 years and upwards, born to parents one of whom is mentally defective. In this series 146 appear to be normal, 7 are in schools or colonies for the mentally defective, and 3 are in some other way abnormal. Thus at least 7 out of 156 (nearly 4½ per cent.) are mentally defective, and probably this figure should be higher—i.e., in greater excess of the 1 per cent. that might be expected from normal parentage. The numbers are small and not all the children have reached the age when ascertainment is compulsory or indeed can be depended upon. The Committee makes the tentative suggestion that when the father is the defective most of the children are female, and vice versa; but in the groups given the sex of the children is not always stated. The further suggestion that the deficiency of the parent emerges more on the opposite sex also remains to be proved. In the meantime investigations of this kind are of great interest.

PULSE-WAVE VELOCITY.

IMPAIRMENT of arterial elasticity has long been recognised as playing an important part in the production of circulatory insufficiency, but no satisfactory clinical method has been introduced for accurate quantitative measurement of the impairment in particular cases. Palpation of the superficial vessels, or inspection of the retinal arteries with the ophthalmoscope, will generally reveal advanced structural changes; but this information is merely qualitative. For a quantitative estimate of arterial elasticity one must have recourse to an indirect method, based on observations of the velocity of transmission of the pulse-wave; and before the results can be applied to the study of disease, it is necessary to determine the limits of accuracy of these observations and the range of normal variation. This has been attempted recently by Dr. Otto Beyerholm.[1] He found that the average pulse-wave velocity in persons between the ages of 15 and 60 was just over 7 metres per second, readings above 8 or below 6 metres being exceptional. Amongst children and older people the number of observations was too small to yield reliable figures, though a general tendency of pulse-wave velocity to vary with age was noted. He points out that even in a uniform sample of material, composed of subjects of the same age and sex, individual readings may vary by as much as 2 metres per second, whereas readings differing by more than 1 metre may be obtained from the same subject at different times. These values are very similar to those previously recorded by Bramwell, Hill and McSwiney.[2] They and their collaborators made a further series of observations on the relation of arterial elasticity to diastolic blood pressure, both in excised human arteries and in the living subject, and their conclusions may be summarised by saying that the extensibility of the arterial wall depends on two factors—(1) the structure of the vessel, and (2) the diastolic blood pressure. Even in the absence of any morbid changes in the vessel wall a high diastolic pressure may be instrumental in producing impairment of the functional efficiency of the arteries, which can be recognised by an unduly high reading of pulse-wave velocity.

In considering the clinical value of pulse-wave velocity as an index of arterial insufficiency, there are various points which have to be taken into account. In the first place, in the investigations mentioned, only one particular segment of the arterial system has been considered, and it may not be justifiable to regard the arteries of the upper limb as a fair sample. How far do pathological changes in this situation imply similar changes in other parts of the body? Disease affecting the limb arteries would be relatively unimportant provided the cerebral and coronary arteries were healthy. Again, the readings obtained give only the mean velocity in the vessels of the upper limb, whereas stiffening of the aorta and its great elastic branches may lead to very different results from similar changes affecting the smaller and more muscular arteries. Lastly, in any test of functional efficiency it is necessary to consider the degree of impairment which may exist without becoming manifest. It is well known, for example, that the slighter degrees of renal insufficiency are not associated with any rise in the blood-urea, and in the same way it is necessary to ascertain to what extent the arterial walls may lose their elasticity without producing a rise in pulse-wave velocity sufficient to be recognised as pathological. Further investigations are needed in order to answer these questions, and to render available for clinical purposes a test which promises to be useful in diagnosis.

[1] Acta Medica Scandinavica, 1927, lxvii., 203.
[2] Heart, 1923, x., 233.

ANTENATAL WORK AT A SCOTTISH MATERNITY.

THE medical report of the Glasgow Royal Maternity and Women's Hospital for the year 1926 is arranged in accordance with the standard scheme for unification of maternity hospital reports, suggested by a committee of the Royal Society of Medicine. The intrinsic value of this report is evident seeing that the hospital deals annually with nearly 8000 patients, not including the antenatal and postnatal dispensaries. Its value is further increased by the comparison of the results of treatment in the case of patients who have received antenatal care, of those who have had no antenatal examination, and of the frank emergencies. Information on these lines is difficult to obtain, and is much needed at the present time, when the extension of antenatal treatment depends so largely on a recognition of its value.

The report opens with a numerical summary of presentations. There were 42 breech and transverse presentations among 1387 cases (2·4 per cent.) which had had antenatal care and 21 among 538 cases (3·9 per cent.) which had not. It is apparent from these figures that version had been performed on a considerable number of breech presentations in the antenatal department; the tables of maternal and fœtal mortalities given on pages 16–17 justify an extension of this procedure, for a maternal mortality of 3·6 per cent., and a fœtal mortality of 27 per cent., are above the average mortality-rates for this presentation. Pelvic contraction was treated by induction of labour in three cases, by Cæsarean section in 108, and by craniotomy in 19. Of cases under antenatal supervision labour was induced in eight such cases (there is a discrepancy in these figures referred to in the report), Cæsarean section performed in 74, and craniotomy in five. The fœtal mortality in 83 cases of spontaneous labour was 7·2 per cent. These figures clearly contrast the treatment of pelvic contraction in Glasgow and London. The most interesting tables in the report are those dealing with the treatment of antepartum hæmorrhage. Taking the 86 cases of placenta prævia, there was no maternal death and a 50 per cent. fœtal death-rate among 11 antenatal cases, contrasting with the emergency cases (66 cases) in which the maternal mortality was 9 per cent. and the fœtal 87 per cent. These figures well illustrate the value of antenatal work even in such a condition as unavoidable hæmorrhage; but they still contrast with those of accidental hæmorrhage in which the maternal death-rate was only 1·7 per cent. and the fœtal 50 per cent. Conservative treatment was the method of election, Cæsarean section being rarely performed for antepartum hæmorrhage. The report deals fully with toxæmic pregnancy. The maternal mortality in 72 cases of eclampsia was 15 per cent., about one-quarter lower than the average figure for all hospitals, and again Cæsarean section was the exception. The fœtal mortality-rate is not given though the information is available for calculating it. The morbidity-rate (B.M.A. standard) for the whole hospital is 10·6 per cent., for the emergency cases 13·9 per cent., and for

the antenatal cases only 8·6 per cent., further evidence of the value of antenatal work, although the figures are a little higher than might have been anticipated. The summary of fatal cases includes five of rupture of the uterus, three of which died of peritonitis, and two apparently of shock; there is no record of recovery from this accident.

Hospital reports if properly compiled have real value to those engaged in similar work. This report has been carefully put together and is a credit to the registrar.

EDUCATION OF THE DEAF.

AN address was recently delivered by Mr. Sibley Haycock, superintendent of the Langside School for the Deaf, Glasgow, to the Scoto-Irish Branch of the National College of Teachers of the Deaf, Dumb, and Blind, Belfast, and his words contained information of particular interest to the medical profession. To all of us it is perfectly well known that our large deaf population is practically wasted for civic and social purposes almost solely because of want of education. The majority of these people are quite able to discharge competently most of the duties of a citizen, and this would become obvious at once to the public if the barrier which their defect erects between them and the hearing population were not so lamentably maintained. There are only 16 residential schools for deaf children in this country and Scotland, and only 450 qualified teachers, all of whom are still badly paid, though this position is at last receiving attention, Government recognition having brought with it financial aid. The services of Dr. Eichholz, chief of the medical department of the Board of Education, have been immensely valuable in the attempts of what is still a small body of enthusiasts to meet the situation, for his general understanding of the capacities of the deaf child, gained by personal inspection of all kinds of schools, has helped to a better understanding of the problems before us. Mr. Haycock, in his address, set out many of these things in detail, concluding with a practical explanation of the special nature of the work of teachers of the deaf. Here he laid stress on the fact that the psychology to be dealt with is that of the normal child, but normal only up to a certain point, as so much of the instruction that is gained by hearing is lost to the deaf subject in his silent world. The deprivation of mental reactions must retard the development of the deaf-born child unless real communication is quickly established between him and the hearing world. The only way in which this connexion can be brought about is through lip-reading, and the elaborate course of instruction required should commence in babyhood. Mr. Haycock says: "If a deaf child is to be given the best chance of having the severe handicap of his deafness minimised to the fullest possible extent; that is, if he is to have the best chance of learning to speak and of understanding the speeches of others, his education, of necessity, must start early, and, school conditions being satisfactory, the earlier the better." There must be common agreement with this statement, which forms a serious reflection upon us all when we remember how small is the effort as yet to supply the special teaching required, and when we hesitate to say that this teaching is as thorough as it has been in the past.

EXPERIMENTS WITH B.C.G.

SOME time ago Calmette suggested that immunity against tuberculosis might be developed by the introduction into the body of living tubercle bacilli which had been rendered avirulent by prolonged growth under abnormal conditions. This suggestion is academically irreproachable and conforms to the traditional Pasteurian method of vaccination. The strain of tubercle bacilli which he produced is known, in current laboratory slang, as B.C.G. (Bilié-Calmette-Guérin). Its use is avowedly not without risks, and Calmette proposed that it should be employed primarily for the protection of infants whose parents had active tuberculosis and whose expectation of life would ordinarily be bad. Basing his technique on a belief in the overwhelming importance of the alimentary tract as the initial port of entry of the tubercle bacillus, he has treated many such children with oral doses of the vaccine, and claims that the results are excellent. He considers that the bacilli, although no longer virulent, largely retain their antigenic powers, and therefore evoke antituberculous immunity. This opinion is supported by some experiments on guinea-pigs recently reported[1] by Japanese investigators. In the first experiment a number of the animals were given an intravenous injection of B.C.G., and were later tested for their reaction to tuberculin as well as their response to subsequent inoculations with virulent tubercle bacilli. Both tests indicated that a certain degree of immunity was definitely established, and although in these inoculated animals infection could still be induced with large doses, it progressed more slowly in them, and with a greater tendency to heal, than it did in control animals. The second series of experiments more closely reproduced the clinical circumstances envisaged by Calmette. Guinea-pigs were given intragastric doses of the vaccine preparation, and a month later these were followed by a known effective dose of bacilli of a virulent strain. In untreated animals the effect of the virulent organisms was to produce a tuberculosis of the abdominal glands, most pronounced, at the time of examination, in those of the subpyloric group. In the vast majority of the treated animals, examination three weeks after the virulent organisms had been ingested revealed no enlargement or other alteration of these glands; in a few cases an enlargement described as "inflammatory" in nature was noted; only very exceptionally were any changes found suggestive of actual tuberculosis. The sum of these experiments is to support the thesis that a definite immunity can be produced by B.C.G. It would be useful to have further information about the possibility of lesions developing at a later stage than the period which they cover and about the effect of the treatment on the ultimate survival of the animals.

A review of Prof. Calmette's new book on preventive vaccination with B.C.G. will be found on p. 84 of our present issue.

MENSTRUATION AND THYROID FUNCTION.

THE close relationship between thyroid and ovarian function has long been recognised, but the laws governing it are still obscure. In this field, as in many others, little is gained by studying the normal; enlightenment is more likely to come from observing the reproductive abnormalities of patients suffering from thyroid disease. The evidence yielded by such observations has been valuable but hard to comprehend. Exophthalmic goitre, for instance, may be associated with either amenorrhœa or menorrhagia—an apparent contradiction also seen in myxœdema, which stands at the opposite end of the scale of thyroid disorder. As a result of their investigations of 300 cases of thyroid disease,[2] Dr. H. Gardiner-Hill and Dr. J. Forest Smith deduce two principles: (1) that when menstruation is affected by a given thyroid fault the alteration tends to be in a uniform direction; and (2) that the weaker the thyroid the greater the flow. The series included nine cretins, 100 cases of adolescent goitre with varying degrees of thyroid disturbance, 96 of exophthalmic goitre and hyperthyroidism, 41 of myxœdema, 24 of parenchymatous goitre, and 22 of simple adenoma of the thyroid. The cretins' behaviour confirmed the findings of previous authorities;

[1] Annales de l'Institut Pasteur, 1927, vol. xli. Essais d'immunisation avec le B.C.G. Calmette Guérin, by Prof. M. D. Arao Imamura and Dr. Michihiko Takashashi.—Sur l'immunité des cobayes vis-à-vis de l'infection entérale par le bacille tuberculeux humain après, administration intragastrique de B.C.G. Calmette Guérin, by Dr. Kiyoshi Satake.

[2] Jour. Obst. and Gyn., 1927, xxxiv., 701.

menstruation was very late in spite of thyroid medication, but once started was normal and regular. Of the adolescent goitres 79 per cent. seemed to be of the colloid variety, with varying degrees of thyroid function, and 16 per cent. were ordinary cases of exophthalmic goitre. The basal metabolic rate was over +10 per cent. in all the latter, and in general the B.M.R. figures agreed very closely with the clinical grouping. In 63 per cent., however, of those colloid goitres in which hypofunction was diagnosed clinically, the B.M.R. was more or less normal, a fact which provides interesting confirmation of the view that many such goitres are compensatory enlargements. Menstruation was regular and normal in about half the patients with colloid goitre, whatever the state of the thyroid, and in most of the remainder it varied inversely with the thyroid's activity, amenorrhœa being associated with hyperthyroidism and menorrhagia with hypothyroidism. The exophthalmic patients with their high B.M.R. mostly complained of amenorrhœa.

The group of adult exophthalmic and hyperthyroid patients gave similar results; 57 per cent. of those with definite primary Graves's disease had delayed or irregular periods, whilst 42 per cent. menstruated normally. Of those with less thyroid enlargement and no definite ocular signs only 27 per cent. had scanty menstruation, whilst 65 per cent. were normal. A section of this work suggests an interesting explanation of the apparent anomaly of amenorrhœa and menorrhagia both being reported as symptoms of myxœdema. Dr. Gardiner-Hill and Dr. Forest Smith notice that when myxœdema develops before the menopause it is often accompanied by menorrhagia, and rarely by amenorrhœa. In several of their cases, however, it was preceded by a natural menopause, and they suggest that this kind of occurrence accounts for the impression that myxœdema causes amenorrhœa. The effect of the disease on the œstral functions can only be estimated, they consider, by taking into account whether it occurs before a natural menopause, after a natural menopause, or after a premature one. If before the menopause they find that the usual reaction is menorrhagia; two-thirds of their patients fall into this group. In the remaining third menstruation had been regular until the menopause, and myxœdema had developed a considerable time after it. Three patients who had had a premature menopause showed signs of the disease so long afterwards as to make it very unlikely that the cessation of menstruation was due to the thyroid disturbance.

Of the patients with parenchymatous goitre, 79 per cent. had normal and regular periods and the remainder tended to menorrhagia; none had amenorrhœa. In the large majority, however, there was no gross disturbance of thyroid function. Similarly, 83 per cent. of patients with adenomata of the thyroid menstruated regularly, and the remainder were divided between amenorrhœa and menorrhagia. The few patients in both groups whose thyroid activity was subnormal suffered from menorrhagia. This is consistent with the two general conclusions which Dr. Gardiner-Hill and Dr. Forest Smith have drawn, and their conclusions will undoubtedly be of great assistance in the explanation of menstrual abnormalities in which there has hitherto seemed to be neither rhyme nor reason.

THE CORRELATION OF PHYSICAL AND MENTAL EXCELLENCE.

THE adage about sane minds and healthy bodies is more often quoted as an exhortation than a statement of fact, but a series of investigations carried out at the Manchester Grammar School by Dr. A. A. Mumford go far to show that it is indeed true that the successful scholar is in most cases the successful athlete, or, at least, the owner of a well-developed body. Dr. Mumford, it seems, is ready to glean in any field for straws which will show the way of the wind, and he has made use of such diverse sources of information as Sir Arthur Keith's "Mechanism of Respiration in Man," the aphorisms of a tailor's cutter, and the measurements of mediæval brasses and suits of armour. The tables finally produced are a modification of those devised by Mr. Cecil Hawkins in 1905, a functional element being introduced by adding the tests for air-pilots constructed by Group-Captain Martin Flack, of the Royal Air Force Medical Service.

At Manchester Grammar School Dr. Mumford has arranged that every boy's record card should have space for annual measurements of height, weight, and the girth of the chest and upper and lower arm, together with general estimates of work and character by the high master and of health by the medical officer, and statements on place in class, method, and time spent on travel, and other points seeming to be relevant. The boys were watched in gymnasium, swimming-bath, and playing-fields, and every effort was made to ascertain individual needs and capacities. Describing his conclusions recently to the Royal Anthropological Institute Dr. Mumford showed how his careful study had confirmed many "common-sense" opinions. The words "physical fitness," he maintains, nowadays have the same kind of soporific effect on human judgment as the term "salvation" had a hundred years ago. As a certificate of security fitness is valueless unless some definite object is in view. A school medical officer must not only study and measure the physical capacity of his pupils; he must also study their adaptability and their preparedness for a wider and equally strenuous future, when they will be under no watchful supervision. It is possible, Dr. Mumford claims, to predict from the shape and movements of the chest of a boy of 12 the directions in which he is most likely to be successful, and to advise the particular form of exercise calculated to make good his deficiencies. The swimmer, the boxer, the long-distance runner, and the student each have their own way of breathing, which can be recorded on a drum. Physical measurements, he considers, are related to mental activity and to the capacity to withstand and recover from mental strain in school life. "Without properly conducted and periodically reviewed systematic measurements of physical and mental growth considered in relation to one another," he says, "it is impossible to judge the effect of mental concentration either on the boy's present growth or his future fitness for civic life. Classwork in school calls for activity of the same bodily organs and to some extent the same tissues as does physical exercise, though in a different way and to a different degree." To confirm this belief in the inter-relation of the two elements he studied a series of 285 boys who had gained entrance scholarships at Oxford or Cambridge during the last 20 years. These boys were found to display a somewhat accelerated physical growth when compared with the average, and they had a slightly better physical frame and fuller breathing capacity. The greater acceleration in growth of chest-girth was more marked among those who took first-class honours at the University than among the seconds and thirds. There was evidence that men in the latter groups used up in study some of the energy which might otherwise have been available for physical development. The average chance of exhibiting physical excellence at school—by gaining school colours and sports awards—was one in ten, but one in every three of the scholarship boys had secured some mark of prowess. Moreover, the greater the degree of mental excellence the greater was the physical excellence. One boy in four in the first-class group, one boy in five in the second-class group, and one boy in nine in the third-class group had been awarded colours. Dr. Mumford's conclusion is that the study of the adaptability of the human frame to meet the demands of the various forms of mental and bodily work required in modern civilisation should be one of the principal objects of the modern school medical officer.

A SWISS TOUR.

PROFIT and pleasure were happily blended in the visit paid to sanatoria and other institutions in Switzerland during the last fortnight of the year by a party of medical men and women, some 70 in number, who took the opportunity of arrangements made by the Council of the Royal Institute of Public Health with the coöperation of Sir Henry Lunn. The first halt occurred at Zurich, where an instructive visit was paid to Dr. R. Scherb's orthopædic clinic known as Balgrist. Here there are 140 beds for the treatment and functional re-education of children with dystrophies and deformities of all kinds, and a special ward devoted to poliomyelitis demonstrates the possibility of muscular recovery even after the expiry of a year from the primary infection. Dr. Scherb gave a convincing demonstration of the fact that physiological movements alone do not avail to cure the deformity of established scoliosis. As is usual in Switzerland a large proportion of the operations are done under local anæsthesia, a method of particular utility to the orthopædic surgeon who has to make the most of what muscular and nervous mechanism is available. Attached to the clinic is a school with primary, secondary, and infant departments under municipal control, and a technical section in which various trades are taught to the older patients in collaboration with local trade-unions. A visit was also paid to the Zurich skin hospital which rejoices in an almost complete collection of life-sized coloured wax models of skin lesions. Having reached the Grisons the party went straight up the admirable electric railway, claimed to be the steepest adhesion line in the world, to Arosa where Dr. Amrein showed them the lavish equipment of the Altein Sanatorium. Davos, with its many public utility services, was the next objective, beginning with the controlled dairy where elaborate precautions are taken to ensure the purity of the milk and the institution which formerly bore the name of Queen Alexandra, but has now become a popular sanatorium for the Canton of Thurgau. In the evening a reception was given to the visitors by the Davos Medical Society, over which Dr. Biland presides. The party was put in touch with the extensive research on climate in relation to human physiology which is being carried out in the valley under the (temporary) direction of Dr. Lindholm, official meteorologist to the Swedish Government. A clinical lecture given in Davos is reported on another page. Proceeding along the Albula railway to the Engadine, the visitors were received at St. Moritz by Dr. Bernhard, the pioneer of sunlight treatment, and were then driven past the frozen lakes to Maloja at the head of the valley, where the week-end was frankly spent in the pursuit of winter sport. The convenient route to Western Switzerland was then taken, down the Bergell and via Milan and the Simplon tunnel to Sierre, from which Montana was reached by the two-stage funicular railway, and the party was entertained at the Palace Sanatorium, now the only English sanatorium in Switzerland for pulmonary cases. Here Dr. A. J. Morland gave them some account of his clinical experience with sanocrysin. Later they were shown over the newly-built Moubra Sanatorium, planned by M. Heer on the latest and most approved lines for the treatment of surgical tuberculosis. Patients at the Palace Sanatorium who require such surgical treatment as phrenic exairesis or thoracoplasty are transferred temporarily to Moubra for this purpose. The last objective of the tour was Leysin where Dr. Rollier entertained the party with a lantern lecture on the therapeutic and social value of heliotherapy, and an admirable demonstration followed of the technique of treatment and of the various forms of occupational therapy, ending with a film exhibiting the "school in the sun" with a demonstration of some actual classes. A special train conveyed the visitors to the graded institutions of the Société Climatérique, including the Sanatorium Grand-Hotel under Dr. Jaquerod. The organisation and planning of the tour left nothing to be desired, and the party returned with pleasant memories of the hospitality received.

ALCOHOL AND THE HUMAN BODY.

TRADITION and enthusiasm have surrounded the whole subject of the action of alcohol with a mist of fiction. It is interesting, therefore, for the general observer to hear an impartial summary of the present scientific position from so wise an authority as Prof. Hugh MacLean, of St. Thomas's Hospital. In a paper on Alcohol and Alcoholism in relation to Problems of Nutrition and Health, read before the Society for the Study of Inebriety, on Tuesday last, Jan. 10th, Prof. MacLean put first the question: Is alcohol a food? Even this, he said, cannot yet be answered with absolute certainty, in spite of a great deal of experimental work. A foodstuff may be defined as fuel that can be used by the body as a source of energy. Protein alone can help to repair the animal organism; fats and carbohydrates can only supply energy. Alcohol, therefore, lacking the essential nitrogenous element of a protein, can never repair tissue waste. As a source of fuel-supply, alcohol will give seven calories for every gramme oxidised, whereas starch will give four calories and fat nine calories. Unlike other foodstuffs, alcohol requires no digestion, and 50 per cent. of it is absorbed directly from the stomach, whence it is very rapidly and evenly distributed over all the soft tissues, even penetrating the bones to some extent. Only 5 per cent. of a moderate dose is excreted by the usual channels, 95 per cent. disappearing by oxidation in the body. The work of Atwater and Beredict in America showed that alcohol is rather more efficiently oxidised than ordinary foodstuffs, that it can replace fat, starch or protein as a source of energy, and that, after a small temporary loss, the body protein is spared. When the amount of work to be undertaken is small, alcohol appears to be just as good as other forms of food, but it fails when a heavy task lies before the body or when a high degree of discrimination or correlation is demanded. There is some evidence, said Prof. MacLean, that the mechanism of the muscles for oxidising alcohol is different from that for oxidising fat and sugar, for in some conditions the latter may be lost and the former retained. In diabetes, a disease which he has studied closely, the patient can sometimes obtain nourishment, within limits, from alcohol when fat and sugar fail him. The idea that more work can be done if alcohol is taken in addition to a normal diet is beloved of the working man, but Prof. MacLean declared it to be a myth. Nevertheless, reviewing the experimental evidence, he concluded that alcohol is a food, but that there is no reason why it should be substituted for ordinary food under ordinary conditions of health. In disease, however, a patient may be unable to take or to digest ordinary food, but may be able to obtain for a short time from alcohol sufficient calories to keep him alive. The body can oxidise 8 c.cm. of alcohol in an hour, therefore under exceptional circumstances the administration of eight ounces of brandy in the day may produce 700 or more calories, and make all the difference between life and death. The undoubted stimulation of the ferment-producing power of the stomach made alcohol, in his opinion, a useful addition to the diet of elderly people and others in whom the secretion is feeble, and the psychological effect may make all the difference between distaste for and good digestion of a meal. Apart from this, however, the continued secretion of gastric juice after the stomach was empty could only be harmful, particularly in ulceration or sthenic dyspepsias. On the intestines, said Prof. MacLean, alcohol has no action, nor does a moderate amount affect the kidneys; its supposed action as a cardiac stimulant is entirely due to indirect action, probably on the mucosæ of the tongue and stomach. On the

liver falls the brunt of absorption, and therefore of chronic alcoholism, and it is the liver that prescribers of alcohol must remember when they consider its dangers. Dr. Alex. Cawadias, in the subsequent discussion, described experiments of his own which had impressed on him the selective action of alcohol on the liver and the peculiar sensitiveness of this organ to the drug. Alcohol is a food, he said, but at the same time it destroys the gland that metabolises food, and disturbs the metabolism of proteins. This incomplete metabolism of proteins, according to Dr. Cawadias, is the cause of many allergic symptoms, vague nutritional disturbances often classed as "neuroses." Prof. MacLean believed that alcohol contributes to fatty degeneration, and Sir William Willcox described the rare acute case which was so sudden and so severe as to be taken for arsenical poisoning. In moderate regular drinkers, too, glycosuria is not uncommon, and ceases as soon as the consumption of alcohol is reduced.

THE British Empire Cancer Campaign is arranging an International Convention on Cancer Research to be held in London next July. Sir John Bland-Sutton, who is the vice-chairman of the Campaign, will preside over the Convention, and sections will be devoted to Pathology, Diagnosis, Medical Treatment, Surgical Treatment, Radiological Treatment, and Public Health and Statistics. The following have been appointed chairmen of sections: Pathology, Prof. W. S. Lazarus-Barlow; Diagnosis, Sir Thomas Horder; Surgical Treatment, Sir Charles Gordon-Watson; Radiological Treatment, Prof. Sidney Russ, D.Sc.; Public Health and Statistics, Dr. F. E. Fremantle, M.P. Sir William Willcox and Dr. Robert Knox will act as vice-chairmen of the Section of Diagnosis and Radiological Treatment respectively. Invitations are being sent, it is stated, to authorities on cancer all over the world, and the universities and medical schools of the United Kingdom will be invited to send delegates. Sir Richard Garton, chairman of the Finance Committee of the British Empire Cancer Campaign, is making a donation towards the expenses of the Convention, and it is intended that no part of the Campaign's funds shall be used to defray them. The Royal Society of Medicine has offered its premises for the meetings, and the Duke and Duchess of York will attend a soirée at which delegates will be received. The chairman of the Convention Committee is Mr. J. P. Lockhart-Mummery.

Sir Thomas Horder has been invited to become a Freeman of Shaftesbury, which is his native town.

INDEX TO "THE LANCET," VOL. II., 1927.

THE Index and Title-page to Vol. II., 1927, which was completed with the issue of Dec. 31st, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

INTERNATIONAL BULLETIN OF MILITARY MEDICINE AND PHARMACY.—At the Fourth International Congress on Military Medicine and Pharmacy held at Warsaw last year, at which 36 delegations from foreign countries were present and over 2000 individual members, it was decided that a permanent link should be established between the medico-military organisations of the different countries by the publication of an International Bulletin. This Bulletin is to appear monthly from Jan. 1st, through the medium of the *Archives Médicales Belges*, and for the moment will only be published in French and English. It will consist of articles of a technical character furnished by the national delegations of each country who will send their work, with the approval of the health services of their respective countries, to the editorial committee of the Bulletin, a body which is appointed by the Permanent Committee of the Congress on which the national delegations are represented. The editor is the secretary of the Permanent Committee, Dr. Voncken, Hôpital Militaire de Liége, Belgium, from whom particulars may be obtained.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLVIII.

THE TREATMENT OF TUBERCULOUS EPIDIDYMITIS.

BEFORE considering the treatment of tuberculosis as it affects the testicular apparatus it is essential to appreciate the cardinal features of its onset and course. The age-incidence is from puberty onwards; tuberculosis of the testis is unknown in childhood, apart from generalised miliary tuberculosis, and the majority of cases occur between the ages of 25 and 45, after which time the condition becomes progressively less common. This accords with the period of fullest activity in the testis. It is agreed that the disease attacks the epididymis first, the body of the testis if involved being affected secondarily. Any gross degree of hydrocele is therefore unusual, though a small amount of fluid in the tunica is a common feature. There is general consensus of opinion that the part of the epididymis attacked first as a rule is the globus minor, and the earliest clinical sign is a nodule in this situation. If the disease spreads unchecked the nodule will enlarge, and tend to soften and caseate, becoming adherent to the skin and forming a sinus on the postero-lateral aspect of the scrotum. The rest of the epididymis becomes involved with secondary caseating foci. The testis is destroyed by caseation and fibrosis, but the process being slow testicular sensation remains unaffected for a long time. The vas deferens exhibits nodular thickening, and rectal examination reveals thickening and softening in the vesiculæ seminales or prostate. Later the testis of the opposite side becomes affected, and the bladder may be the seat of tuberculous cystitis. The kidney also may show evidence of infection.

Differential Diagnosis.

Differentiation from such conditions as syphilis or neoplasm of the testis or the acute infections of the testicular apparatus should offer little difficulty. There are, however, certain conditions which give rise to fibrous thickening in the epididymis which must be borne in mind. Fibrosis may follow previous inflammation due to the gonococcus or *Bacillus coli* or damage produced by vascular interference through partial torsion of, or thrombosis in, the spermatic cord. A careful consideration of the history, combined with rectal examination and possibly prostatic massage and urethroscopy, should clear up the diagnosis.

Healing without Operative Interference.

What has been described is the extreme picture of progressive disease; the rate of spread, like that of tuberculosis elsewhere in the body, is, in fact, extremely variable. Thus a nodule may remain indolent in the globus minor for a number of years or breaking down may form a sinus, only to heal up again after discharging for a time. This last is important, as it is not recognised clearly that healing by fibrosis will occur in this particular situation. Although occasionally the whole process is a rapid one, so that an acute form of the disease may be described, the average duration of symptoms before relief is sought is nine months. Quite half the cases exhibit discharging sinuses when they are first seen. The inference to be drawn from the above facts is that, given a high enough resistance on the part of the patient to the tubercle bacillus, and the means of augmenting this are well known, the disease, like tuberculous inflammation occurring elsewhere in the body, has a tendency to natural arrest through healing by fibrosis. This healing process is encouraged by local rest.

Medical treatment, or rather the withholding of surgical treatment, is indicated when a firm nodule in the epididymis is the only evidence of disease. If at any time softening or spread in the epididymis

commence, surgical treatment, as detailed below, is required. In certain of these cases presenting merely a nodule in the epididymis, in spite of the most complete investigation, it is obvious from what has been said above the diagnosis must remain in doubt.

To the surgeon, at any rate, the eradication of the primary focus of the disease in the urogenital tract would seem to be a more rapid and certain procedure. Unfortunately, however, we are still ignorant of the exact site of primary infection in the genito-urinary system. The epididymis may be the primary site, being attacked via the blood stream, or it may be infected via the vas from a primary focus in the prostate or vesicle, as in the commoner disease of gonorrhœal epididymitis. In substantiation of the latter view is the fact that many cases exhibiting early and trivial signs in the epididymis show marked involvement of the vesicle and prostate, and that in many cases of very early and radical removal of the testis, epididymis and vas involvement of the opposite epididymis nevertheless occurs. H. H. Young, in a series of 222 cases of genital tuberculosis, found that in 47 cases the prostate and vesicle were infected by tuberculosis without any lesion in the epididymis. Moreover, the focus is found first in the globus minor or prostatic end of the epididymis, whereas the frankly blood-borne infections of the testicular apparatus, such as mumps and gout, attack the body of the testis primarily.

Surgical Measures.

The forms of surgical treatment appropriate for different types of case include (1) incision and curetting, (2) epididymectomy, (3) orchidectomy, (4) radical removal of the seminal tract.

Incision and curetting.—This may be utilised as a temporary measure where a caseating focus in the scrotum is on the point of ulcerating through the skin. As a rule it will be followed by more radical treatment, although in cases where there is extensive tuberculosis of other organs, such as the lung, it may be injudicious to undertake any further surgical interference.

Epididymectomy.—This operation can be undertaken without fear of endangering the blood-supply of the testis, and should be carried out where the disease has not yet involved this organ. The lower third of the vas deferens should be removed at the same time. Obviously this would be the operation of choice if the epididymis were known to be the primary focus in the genito-urinary tract, but it may be asked whether it has any value if the vesicle and prostate are affected. Even where these organs are involved, primarily or secondarily, however, it is clear that by removing part of the infected tissue, particularly if it happen to be the major part, the recuperative powers of the body are given a better prospect of overcoming the infection. In practice, a vesicular or prostatic lesion often clears up or ameliorates after epididymectomy. Similarly, in the operative removal of a tuberculous joint it is unlikely that all tuberculous tissue is removed, but the results of excision in suitable cases are well known.

Orchidectomy.—This should be reserved strictly for those cases in which the body of the testis is obviously affected. Apart from this it is unjustifiable. A high percentage of cases, in spite of all treatment, sooner or later attack the epididymis on both sides, and to remove the internal secretion of both testis unnecessarily in a man at the prime of life is manifestly unsound practice, and may have serious effects on the mental and general physical health of the patient.

Radical removal of the seminal tract.—This is an extensive and formidable operation. As advocated by Young, it is carried out through a perineal incision. The seminal vesicles and ampullæ are isolated, and the prostate, if infected, is removed also. The epididymes are then exposed in the scrotum, with the patient in the dorsal position, and removed together with the whole remaining portions of the vasa. The risks of the operation consist in the difficulty in dealing with the base of the bladder and the fear of a perineal urinary fistula. The peritoneum and rectum may be damaged, and, finally, the majority of the patients are not good subjects for extensive major surgery. Many exhibit active tuberculosis elsewhere, especially in the lung.

A less drastic operation may be carried out entirely through an inguinal incision, stripping back the peritoneum from the bladder until the vesicles and prostate are reached. However, if complete extirpation of the seminal tract, rather than removal of grossly infected material, is aimed at, the perineal approach to the vesicles must be adopted.

Conclusion.

Treatment should consist as a rule in removal of the epididymis and lower part of the vas. If the body of the testis prove to be involved this must be removed also. Radical removal of the seminal tract should be reserved for those cases in which the whole tract is extensively involved, as offering the only hope of relief or as a secondary operation where, in spite of epididymectomy, lesions in the vesicle and prostate become well marked and progressive. Where a renal lesion coexists, this should be dealt with first if practicable. It must be emphasised that in every case there is the possibility of a renal infection being present, and examination of the urine for tubercle bacilli, together with cystoscopy, should form part of the routine examination. Lastly, and most important of all, the general resistance of the patient to the tubercle bacillus must be increased by the methods which have proved efficacious in the treatment of other tuberculous lesions—namely, fresh air, rest, generous fatty diet, and the use of tuberculin.

R. H. O. B. ROBINSON, M.B.Camb., F.R.C.S.Eng.,
Surgeon to Out-patients, St. Thomas's Hospital.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee 43 cases were considered and £559 voted to 36 applicants. The following are notes on some of the cases relieved.

Daughter, aged 61, of M.R.C.S. who died in 1895. She is now very deaf and has lost the sight of one eye. She looks after an elder sister who is mentally deficient and also takes care of another old lady who pays 10*s.* a week. Income from investments amounts to £34 per annum. The cottage belongs to the two sisters and rates are £2 4*s.* 8*d.* a year. Voted £26.

Widow, aged 37, of L.R.C.P. & S. who died in 1925. Left with six children, 2 to 18 years of age. Since the death of her husband the family have been living on the proceeds of the sale of the practice, which are now exhausted. Applicant borrowed £17. Receives £2 a month from another charity for one child and £5 a quarter from the Freemasons for another. Eldest girl is a typist earning 24*s.* a week. Rent 12*s.* a week. £10 voted and case to be further considered.

Widow, aged 52, of L.R.C.P. & S. who died in 1912. The eldest son, who earns £156 per annum, does not live at home but allows his mother £54 per annum. A daughter, aged 25, is studying for the post office to enable her to secure permanent post. Youngest son, aged 23, earns £78 a year, lives at home, and gives £1 a week towards his keep. Rent £25 per annum. Voted £20 in four instalments, while the daughter is studying.

M.B. Lond., single woman, aged 68, who practised in London and India and then took a home for delicate children which unfortunately failed. Has an adopted child, aged 14, who lives with applicant but attends school. Income from medical work £2 10*s.*, from sale of fruit £3, from paying guests for week-ends £2 10*s.* Allowance from sister of £97. Rent and rates £37. Voted £26 to be paid in quarterly instalments.

M.R.C.S., aged 72, unmarried. Through inability to obtain locums and having exhausted his savings, applied to the Fund for assistance. Receives Epsom College Pension of £30 and old age pension. Voted £30. Total previous relief given £100.

Daughter, aged 54, of L.R.C.P. who died in 1883. She has no income but looks after her mother, aged 87, whose income is derived from the old age pension, the R.M.B. Fund annuity of £30, and from a supplementary grant of 7*s.* 6*d.* a week from our Guild. Voted £18. Has been helped since 1925.

Daughter, aged 61, of L.F.P.S. Glasg. who died in 1897. Only income derived from various charities to the amount of £77 per annum. Fund grant of £18 renewed. This case has been helped since 1914. Total relief £190.

Daughter, aged 68, of F.R.C.S. Eng. who died in 1885. Has been helped by the Fund since 1920, total relief £129. Asks for increased grant until old enough to apply for the old age pension in 1929. Only other income £48 from late father's estate. Voted £30.

Widow, aged 66, of L.R.C.S. who died in 1909. Tries to maintain herself and adopted daughter by taking paying guests. This year only received £126 from this source. Interest on mortgage, rates, and insurance amount to £58. Has been helped by the Fund since 1910, total relief £183. Voted £10.

Subscriptions may be sent to the hon. treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, W.1.

Special Articles.

THE CONTENT OF VITAMINS A AND C IN WATERCRESS.

BY KATHARINE H. COWARD, D.SC. LOND.,
AND
P. EGGLETON, M.SC. LOND.

(From the Department of Physiology and Biochemistry, University College, University of London, and the Pharmacological Laboratories, Pharmaceutical Society of Great Britain.)

THE work here described is partly the result of a suggestion by Dr. H. Scurfield, and partly an extension of an investigation carried out in connexion with the work of Dr. Corry Mann on the feeding of boys of school age (1926). Previous experiments had indicated that watercress (young shoots as eaten in salads) is a rich source of vitamin A. Indeed, it appeared that if allowance were made for about 85 per cent. water in the watercress and about 10 per cent. water in a sample of New Zealand butter with which it was compared, the two materials were equally rich in vitamin A. The experiment which gave this result was carried out in July, 1924, when the metabolic processes of the plant were presumably very vigorous, and it was decided to carry out similar tests at frequent intervals for 12 months, in order to see how far the vitamin A content might vary with the season. For this purpose it was important that the watercress should be obtained from the same source throughout the year, and that it should have had the same treatment in the way of speed of packing, despatch, &c. We were fortunate in securing a suitable supply from the "Sylvasprings" beds at Bere Regis. Baskets were sent direct to the laboratory twice a week, and the three or four days' supply was kept in water in the ordinary daylight of the animal "kitchen." The watercress was the "winter" variety, so-called on account of its hardiness and its ability to thrive in fresh spring water.

The vitamin C content was estimated in September and October of 1925, and the watercress proved to be an exceedingly rich source of this factor also.

Vitamin A in Watercress.

The technique adopted for the test was that in general use in University College, London, at the time.

Rats weighing 45–55 g. were given a basal diet consisting of:—

Caseinogen, "vitamin free"	20 g.	Yeast extract	5 g.
Rice starch	55 g.	Lemon juice	5 g.
Hardened bean seed oil	10 g.	Salt mixture (McCollum's)	5 g.

This was mixed with water to form a stiff paste and given to the rats, fresh each day, *ad lib.* When growth had ceased, the supplement of watercress was given to each rat separately each day. Resumption of normal growth was taken as an index of an adequate supply of vitamin A in the watercress given.

No precaution was taken to give the animals a supply of vitamin D, for it had not been appreciated at that time that vitamin D has growth-promoting as well as antirachitic properties (Steenbock and Nelson, 1923). The animal body can store vitamin D as it can store vitamin A, but if the diet contains neither, growth will cease when the store of either "A" or "D" is exhausted. If only "A" is exhausted, then growth will be resumed when "A" is supplied. If only "D" is exhausted, then growth will only be resumed when "D" is supplied. Most green plant tissue contains very little vitamin D (Boas, 1926, Chick and Roscoe, 1926), hence when animals which have ceased growth on a diet lacking in "A," and probably also in "D," resume growth on being given watercress, it must be assumed that vitamin A was lacking and that the watercress has supplied it, the vitamin D being drawn from the animal's own reserves, or possibly in small amounts from the watercress supplied. While certain of our animals in the long watercress experiment showed normal growth on the doses given, others did not, and in the light of more recent experience we assume that those that did not resume growth had exhausted their reserve of vitamin D, and that their failure to grow was therefore due to a lack of this factor, of which the basal diet supplied little, if any. We did not make calcium estimations of the bones of any of these animals, but we did of others of our stock, and we know from the figures obtained that our animals varied greatly in the calcium content of their bones after six weeks on our basal diet. Hence, presumably, they varied in their original reserves of vitamin D. It was decided therefore to make one further test of watercress on a basal diet containing ample supplies of vitamin D, to see how far the early results had been vitiated by the lack of this precaution, and also to see whether, when the limitation possibly imposed by a shortage of vitamin D was removed, the watercress might not prove to be an even richer source of vitamin A than the early experiments had indicated.

A summary only of the results of the early experiments is given, as it is evident from the later experiment that there was some factor limiting the response to the large doses of watercress then administered.

TABLE I.

—	Date of beginning of test.	Weight of fresh material required for normal growth.
Preliminary test	10/7/24	0·8–1·0 g.
Youngest parts of shoots ..	10/7/24	0·8–1·0 g.
Older green leaves only ..	7/8/24	0·8 g.
Yellowed, but not withered, leaves	7/8/24	0·4–0·8 g.
Stems only	7/8/24	Very poor growth even on 1·6 g.
Shoots— Upper parts	2/10/24	1·0 g.
	11/12/24	More than 0·8 g.
	15/1/25	0·8 g.
	26/3/25	0·4–0·8 g.
	4/5/25	0·4 g.
	4/7/25	0·4 g.

Before discussing the possible significance of the results shown in Table I., the most recent experiment should be described, for in this, by giving the test animals ample supplies of vitamin D in their basal diet, all differences due to variations in reserves of this factor were eliminated, and when they ceased growth it was because their stores of vitamin A were depleted. The technique for this type of experiment differs somewhat from that of the last.

One litter of six rats, weighing 44–49 g., was given a basal diet of:—

Dextrinised rice starch	75 g.	Dried yeast	4 g.
Agar-agar	2 g.	Salt mixture (Steenbock's 40)	4 g.
Caseinogen "vitamin-free"	15 g.		

This was mixed dry, and spread out in thin layers (100 g. over 4 square feet) in zinc trays. These were set under a mercury-vapour lamp at a distance of 2 ft. for half an hour, the lamp running at 2·5 amperes, 130 volts. At half-time the diet was collected and respread in trays to expose a fresh surface. In this way ample supplies of vitamin D were generated in the basal ration (Steenbock and Coward, 1927).

When the rats were steady in weight (the signs of xerophthalmia were very slight) they were given doses of 0, 0·1, 0·2, 0·4, 0·6, 1·0 g. respectively of watercress daily. The smaller doses were single leaflets, the larger were terminal shoots. They were always eaten promptly.

The result of the test is shown in the chart. It is evident that 0·1 g. contains enough vitamin A to promote normal growth when all other necessary factors are present. It should be noted that rat C is a doe and its response is less than that of rat B,

a buck, on a smaller dose, but this is only consistent with the general behaviour of bucks and does of our colony at this point of their growth.

It is evident from Table I. that there is a seasonal variation in the growth-promoting properties of watercress, the most active shoots being formed in the spring and summer months. That light is a potent factor in the formation of vitamin A by living plants has been shown experimentally by

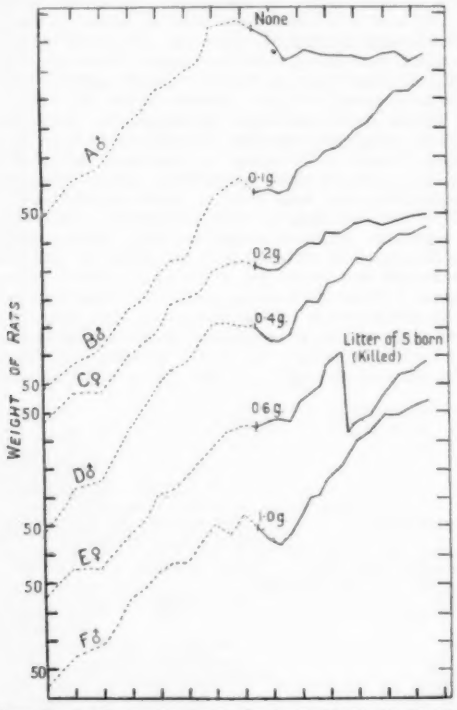


Chart showing weight of six rats over a period of 14 weeks. The weight of each rat at the beginning of the experiment was in the neighbourhood of 50 g. Its subsequent weight at a given period can be estimated from the fact that each division of the vertical ordinate represents 10 g. and each division of the horizontal ordinate represents one week. The dotted line shows their growth before supplements of watercress were given. The rat A served as a control, whilst the others were given small quantities of watercress daily, as indicated. The smallest dose tested (0·1 g.) was sufficient to restore normal growth.

Coward,[1] [2] and that spinach is richer in vitamin D in the summer than in the winter has been shown by Chick and Roscoe. The most recent watercress experiment showed that 0·1 g. of the green leaf contained enough vitamin A to promote normal growth when ample supplies of vitamin D were also given. It would appear, therefore, that in the early experiments which showed a need of 0·4–1·0 g. of watercress, there was probably a shortage of vitamin D; and the fact that less watercress was needed in the summer months than in the winter showed that the shortage was partly, though by no means wholly, removed. It must be concluded that summer watercress, at least, contains some vitamin D, and that it is a most remarkably rich source of vitamin A.

Vitamin C in Watercress.

Little work has been published on the relation of the antiscorbutic value of vegetable tissues with the degree of irradiation of the tissue during growth, but it seems clear that the synthesis of vitamin C can be effected by germinating cereals in darkness, and such synthesis is not demonstrably accelerated by sunlight (Clark, Honeywell and Steenbock, Eggleton and Harris). The watercress used in these tests had grown under favourable conditions of sunlight (August–September), but it does not follow that its antiscorbutic potency was above normal.

Guinea-pigs weighing 200–220 g. were set on the basal diet given below, and given, in addition, measured amounts of watercress shoots fresh daily. Four control animals received no watercress at all.

Basal Diet.

	Per cent.		Per cent.
Ground oats	59	Butter-fat	10
Skimmed milk powder, heated in open trays at 110° F. for 24 hours ..	30	Sodium chloride	1

TABLE II.—*Showing Results of Experiments.*

Expt.	No. of G.-p.	Weight at beginning.	Weight at end.	Dose of watercress.	Period of observation.
		Grammes.	Grammes.	Grammes.	Days.
I.	20	205	145*	—	24
	21	205	170*	—	21
	22	210	170*	—	21
	23	210	180*	—	18
II.	18	225	270	0·5	77
	19	210	305	,,	73
	24	200	270	,,	60
	25	200	290	,,	70
III.	14	220	375	1·0	73
	15	225	345	,,	73
	16	220	355	,,	70
	17	245	400	,,	70
IV.	9	220	400	1·5	60
V.	6	280	355	2·0	60
	8	200	340	,,	63
VI.	1	330	450	2·5	60
	2	240	365	,,	60
	4	315	435	,,	53
	10	225	395	,,	56

* Signifies death of animal.

The controls (20–23) displayed symptoms of scurvy after 12–16 days on the basal diet, and survived only another week. At post-mortem all showed definite scorbutic lesions. Of the animals in batch II., No. 24 remained healthy throughout its experimental period, but the others showed, after 3½–5 weeks the slight "hopping" limp typical of mild scurvy in guinea-pigs. The animals in batches III.–VI. were in good health throughout the period of observation. The minimal protective dose of this watercress in the given experimental condition may therefore be taken as 1 g. per day.

Summary.

Watercress is a remarkably rich source of vitamin A, 0·1 g. only of the green leaf being necessary to promote normal growth in a rat which has become steady in weight on a diet lacking this factor only.

It contains also small amounts of vitamin D.

Its growth-promoting properties are even stronger in the spring and summer than in the winter.

It is a very rich source of vitamin C, 1 g. daily being enough to protect guinea-pigs completely for a period of 70 days.

The writers gratefully acknowledge their indebtedness to Mr. W. Bedford, of Bere Regis, for the regular supplies of watercress and to the Medical Research Council who defrayed the cost of almost the whole of this investigation.

References.

Boas: Biochem Jour., 1926, xx., 153.
Chick and Roscoe: Ibid., 1926, xx., 137.
Clark: Science, 1925, lxi., 45.
Mann, Corry: Diets for Boys during School Age, Medical Research Council, Special Report Series No. 105, 1926.
Coward: (1) Biochem. Jour., 1923, xvii., 134; (2) Jour. Biol. Chem., 1927, lxxii., 781.
Eggleton and Harris: Brit. Med. Jour., 1925, ii., 989.
Honeywell and Steenbock: Amer. Jour. Phys., 1924, lxx., 322.
Sherman, Le Mer, and Campbell: Jour. Amer. Chem. Soc., 1922, xliv., 165.
Steenbock and Coward: Jour. Biol. Chem., 1927, lxxii., 765.
Steenbock and Nelson: Ibid., 1923, lvi., 355.

SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

ABSTRACT OF A LECTURE BY DR. F. HÄBERLIN, DAVOS.

In the course of the recent visit to Swiss sanatoria, arranged by the Council of the Royal Institute of Public Health, a lecture was given in the Rathaus, Davos-Platz, by Dr. Häberlin on the treatment by surgical methods of chronic and intractable cases of tuberculosis of the lung. As in every other branch of surgery, said Dr. Häberlin, the key to success in operations on the lung was a careful selection of cases. There were two main groups which responded favourably to collapse therapy. The first group consisted of those patients who after a more or less prolonged rest-cure lost all toxic symptoms, but in whose lungs there was somewhere a cavity which persistently secreted sputum containing tubercle bacilli. Such patients, if they returned home, would be very liable to start fresh foci of disease, either as the consequence of a hæmorrhage, or as a result of a temporary breaking down of immunity through intercurrent disease, pregnancy, &c. In these cases, which were by far the most favourable, collapse therapy often secured a rapid and lasting result if compression of the cavity could be effected. The second group of patients who were suitable for collapse therapy were those who did not respond favourably to rational conservative measures, whose state of immunity was never balanced, who never lost completely such toxic symptoms as fever, tachycardia, night-sweats, fatigue, and so on, and whose local condition showed no improvement. Many of these patients improved rapidly after the institution of collapse therapy, but it was particularly important in this group to observe the rule of unilaterality of disease. Some authors, especially in Germany, advocated compression in every case of cavernous tuberculosis, but it was quite certain that in a number of cases the cavities disappeared completely after a simple rest-cure, especially those connected with the so-called secondary infiltrations. In all such cases conservative treatment should be tried first, for a patient cured without a pneumothorax was undoubtedly better off than one cured with it.

With regard to the question of the type of collapse therapy indicated—pneumothorax or thoracoplasty—in any given case, Dr. Häberlin said that, provided the pleura were sufficiently free to ensure a good collapse, pneumothorax was indicated: (*a*) in cases of the first group when the cirrhotic retraction of the lung and thoracic wall were not very pronounced and the cavities were of moderate size: (*b*) in cases of the second group of partially exudative character, where there was a definite possibility of reactivation or of fresh infiltration on the healthy side (in such cases it was always possible to interrupt a pneumothorax treatment, whereas a rib-resection was irreversible); pneumothorax was also indicated (*c*) where compression was urgent (e.g., rapid increase in the size of cavities, hæmorrhage, &c.), but where there was uncertainty as to the inactivity of the other side; and (*d*) in those patients whose general condition was not good enough to stand the shock of a big operation. Thoracoplasty, on the other hand, was indicated: (*a*) with pronounced cirrhotic retraction of lung and thoracic wall; (*b*) if the cavities were large; (*c*) where pneumothorax was impossible on account of adhesions. The results of pneumothorax treatment varied within wide limits according to different authorities, from 21 per cent. of cures in Heiligenschwendi to 40 per cent. claimed by Dr. Staub, or 73 per cent. if only the period 1918–23 were considered. These discrepancies were explained by the different character of cases submitted to the operation, by the duration of observation before, and of sanatorium treatment after it, and by the measure of painstaking follow-up work of tuberculosis dispensaries. If these results were compared with the fate of patients who had been considered suitable for collapse therapy, but who had either refused the treatment or had been unable to obtain it owing to pleural adhesions, it would be found that 80 to 90 per cent. of the patients were already dead, and the few who were still in good health usually owed it to the fact that they had continued to work and to live in Davos. The risks of thoracoplasty were, of course, much greater, Sauerbruch estimating the actual operation mortality as 13 per cent. This high rate showed that they still operated too often on patients who were not fit for operation, but it was also true that even in apparently hopeless cases the operation sometimes saved lives that would otherwise be lost. Thus a surgeon who did not think primarily about his statistics would probably continue to operate on such risky cases, knowing that the operation offered a last, though small, chance of recovery.

In conclusion Dr. Häberlin referred briefly to the exairesis of the phrenic nerve, either as a prelude or an alternative to pneumothorax or thoracoplasty, and showed a large number of X ray plates to illustrate his points.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Substitutes for Insulin.

ALTHOUGH the action of insulin given by injection is definitely established, the many attempts to administer it in other ways have had no conclusive results, and in France the tendency is to keep Banting's admirable remedy for three classes of case: (1) diabetes with serious developments; (2) diabetes accompanied by tuberculosis; and (3) cases in which a preparatory course of treatment is required. There is some hesitation before prescribing daily doses in uncomplicated cases, and it is considered preferable to do no more than limit the diet. This being so, there is an obvious opening for drugs which, although less efficacious, can be taken by the mouth, and experiments have been made with the two German preparations, synthalin and glucoferment. There is no doubt that these two drugs will lower the blood-sugar, but they cannot be compared to synthalin in efficacy, and cannot replace it in serious cases. The objection to synthalin is that it produces digestive disturbances; glucoferment is better tolerated. The two preparations are chiefly useful when the aim is merely to increase the amount of food taken. Although their action is not wholly satisfactory, it is beyond dispute that in the absence of insulin their discovery would have been thought a great step forward, and they do lend hope that some day it may be possible to find an oral remedy for diabetic glycosuria.

Treatment of Broncho-pneumonia in Childhood.

No longer do we accept the simple view that sera are purely curative and vaccines purely preventive in their action. Thus vaccines have been shown to have definite therapeutic value in the broncho-pneumonia of infants, though serum is used in conjunction with them because by themselves they act but slowly. Opinions expressed at the recent congress on pædiatrics at Geneva were clearly in favour of the simultaneous use of antistreptococcal serum and vaccine in this form of pneumonia. Although, however, the figures of the last two years show improved results in treatment, it is far too soon to boast about them. The success of these bacteriological agents does not justify us in dispensing with the classical means of combating pneumonia, whose value time has proved, and at present the new methods must be regarded as no more than supplementary.

Dried Milk Fever.

It has sometimes been noticed that babies brought up on dried milk develop bouts of high fever, with no other evidence of disease; this fever abates as soon as dried milk is no longer given. Rare though it is, this condition is sufficiently troublesome to deserve notice. Its origin does not seem to be an infection,

and the best explanation seems to be that of Dr. Lust, who puts it down to the toxic action, on the heat-regulating centres of specially sensitive children, of a preparation containing salts in high concentration.

Insulin in Obliterative Arteritis.

Before having recourse to surgery, an attempt should be made to treat arteritis obliterans by medical means. Radiotherapy and diathermy may be used, but sometimes insulin is equally successful in cases of intermittent claudication and even angina pectoris. I have had one case in which a patient on this treatment was able to walk better after a few days, his range of movement increasing from several yards to several hundred yards within two or three weeks. He put on weight, his general condition improved, and his pain disappeared. It must be noted that in the reported cases no objective sign of vascular degeneration had been detected, and it is clear that treatment has to be continued for a very long time. Subcutaneous injections of 10 units of insulin can be given once a day for one or two months, and if the results are encouraging the dose can then be reduced.

Acute Rheumatism.

The acute articular rheumatism of childhood should not be regarded as an acute affection with relapses, but rather as a prolonged disease with exacerbations. Rheumatism is above all a carditis, and should be looked on as one of the chronic diseases of which syphilis is the type. This idea, developed in France by Bezançon and Matthieu Pierre-Weil, furnishes a rule which can be closely applied in treatment. The object is, in the first attack of rheumatism, to sterilise the body, and this is done by giving very large doses of salicylate of soda over several months. The drug is administered in rheumatism with the same object as arsenic, mercury, or bismuth are administered in syphilis. By combining it with equal parts of bicarbonate of soda much larger doses can be given than were formerly usual, and in certain cases a dose of 12·0 g. can be prescribed.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Retrospect of the Tropical Medicine Congress.

THE success of the Seventh Congress of the Far Eastern Tropical Association, held in Calcutta from Dec. 5th–24th, exceeded all our expectations. It has been the largest and the most interesting Congress held under the auspices of the Association; some 900 members attended, and a large proportion took part in the discussions. An attractive episode was the luncheon given by the Rotary Club of Calcutta, at which Colonel J. D. Graham, Public Health Commissioner with the Government of India, outlined the activities of the League of Nations in preventing the spread of epidemic diseases along the highways of traffic and commerce throughout the world. Delegates on their way to and from the scientific discussions were reminded of the historical background to modern hygiene by the progress of the sacred bull throughout the teeming thoroughfares of the city. The spacious grounds and buildings of the Medical College afforded ample space for the Sections which overflowed from the adjacent Tropical School of Medicine.

The Scientific Sections.

The Section of Medicine opened with a remarkable paper by Lieut.-Colonel F. A. F. Barnardo, I.M.S., Principal of the College, on multiple and secondary infections in tropical diseases. By recognising and treating the secondary factor in the course of enteric fever the author claims to have removed most of the terrors of a disease which is a constant menace to Europeans in the tropics. Dr. Wu Lien Teh's paper on pneumonic plague was equally enlightening, and there was general agreement on the best lines for investigation to take in bubonic and pneumonic plague epidemics. A joint discussion between the Association and the League of Nations Plague Subcommittee gave promise of material advance in preventive methods. The Malaria Section met over four days. Malaria control was introduced by Sir Malcolm Watson, and Lieut.-Colonel S. P. James, I.M.S., recounted the fascinating experiments being made in England on the treatment of induced malaria. Discussion showed opinion to be converging towards a definite pronouncement as to the most advantageous combination of antilarval measures with drug administration. The Cholera Section discussed the administration of bilivaccine, and considered the epidemiology of the disease from many aspects. In the Deficiency Diseases Section Lieut.-Colonel R. McCarrison's persuasive introduction failed to reconcile the two schools of thought on the ætiology of beri-beri and epidemic dropsy. Dr. F. d'Herelle read a series of papers on bacteriophagy in relation to cholera and dysentery, and should his discoveries be corroborated, a new aspect of immunity must be reckoned with. Discussion in the Leprosy Section revealed the notable advances made in the treatment of this disease, and the fact that cure is not only possible but probable in all the more favourable cases.

The New Outlook.

There is no question that the Congress visitors must have gained a profound impression of the wealth of clinical material in India, especially in Bengal, and it is to be hoped that the discussions may be the starting-point of a new era in research and of an organised and systematic record of clinical observations of cases. Add to these a scientific critical assessment of the value of such observations, hitherto so noticeable by its absence among the indigenous medical profession, and we should be on the eve of a great advance in the pathology and epidemiology of the more common diseases of India. Official delegates will have seen reason to press their Governments, central or provincial, for a definite declaration of policy on the two chief needs of the time: (1) A health policy for India associated with the formation of a Ministry of Health; (2) A definition of the standard of medical education to be reached at medical schools and colleges which will enable their graduates to carry out this policy. If the difficulty in issuing such a declaration of policy is purely financial, it is to be hoped that the Government of India will not hesitate to invoke the aid of the Rockefeller Foundation, even if that would involve some loss of control of the actual measures to be adopted. The need is urgent. Preventive medicine is still unorganised in India, medical education is decades behind medical science, and it may be necessary for the League of Nations to reinforce the representations which have been made by every department of preventive medicine and every research worker in India.

The Burden of Malaria.

The prevalence of malaria after the monsoon throughout the whole of India has again drawn attention to the extreme seriousness of this disease not only in terms of mortality, but also as a factor of inefficiency. In Calcutta itself the mortality has risen from 1·4 per mille in 1924 to 1·6 per mille in 1926. Many educational centres show an average absenteeism from college or school of seven days per student per annum from malaria alone. This is serious enough from the educational standpoint, but leaves untouched the industrial aspect. The possibility of obtaining a body of healthy malaria-free labour in the country is at present very remote. No disease in the tropics repays scientific investigation more than does malaria, if a concentrated survey be first undertaken on rational principles. The earlier favourable reports regarding the use of plasmochin as an antimalarial remedy do not appear to have been thoroughly substantiated, except in the case of subtertian fever. Its advantages over the clumsy quinine salts are

many and obvious, but difficulties arising from its toxicity have not been eliminated. Until a less toxic preparation has been devised it can hardly become a popular remedy capable of being distributed to infected populations at large.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Painless Treatment of Leprosy.

FOR some time experiments have been carried on at the National Leprosarium at Carville, Louisiana, with the object of finding a painless and efficient method of administering chaulmoogra oil. Among the oil-soluble analgesics benzocaine has been found the most satisfactory, and after animal and human experimentation the following formula was adopted for routine treatment of several cases.

Chaulmoogra oil	90
Olive oil	10
Benzocaine	3

The preparation is described as follows:—

"Three grams of benzocaine are added to 10 c.cm. of olive oil and mixed with a stirring rod; this is then added to 90 c.cm. of chaulmoogra oil previously warmed on water bath to 70° C.; the oil mass is then agitated in a flask until all remaining crystals of benzocaine are dissolved. The mixture is filtered through filter paper and then heated on water bath at 100° C. for one hour."

As a routine dosage 5 c.cm. of this mixture is given in the deltoid region, alternating semi-weekly with 8 c.cm. in the buttocks, the oil being injected at body temperature. Preliminary case reports with illustrations have appeared in the weekly reports issued by the U.S. Public Health Service. Dr. Johansen is now investigating whether the addition of benzocaine may make it feasible to administer chaulmoogra oil by the mouth.

Christmas under Prohibition.

It is yet too soon to say how great will be the mortality from "wet" celebrations of Christmas and the New Year, but it is safe to forecast that many will die from poisoning. The extra demand at this season cannot possibly be met from the stores of smuggled liquor. Immature "moonshine" will be mixed with denatured alcohol and sold no doubt as "Pure Scotch." Alcohol denatured by the Government is now said to contain formaldehyde, 1 per cent.; pyridine, 1 per cent.; diethylphthalate, 1 per cent.; wood alcohol, 0·5 per cent., and bichloride, 0·1 per cent. Commercial chemists who test liquor to determine its safety for drinking purposes violate the law in so doing, and are to be prosecuted, according to instructions issued by the Commissioner, in Washington.

Artificial Respiration in Infantile Paralysis.

In cases of poliomyelitis, wherein the respiratory centre becomes affected, artificial respiration has often been resorted to in a desire to prolong life. I have not heard of any case in which life has been saved by this procedure, but there is reported from Oconto, Nebraska, the case of a 16-year-old girl who has been kept alive for 34 days by this method. It is said that some hope of her ultimate recovery is entertained.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Work of the Irish Medical Committee.

AT a recent meeting of the Irish Medical Committee held in Dublin it was resolved that the Minister for Local Government and Public Health be requested to receive a deputation in connexion with (1) the inadequate salaries of poor-law medical officers in co. Mayo, co. Longford, and elsewhere; (2) the appointment of locum tenents nominated by doctors going on leave; (3) promotion under the Local Authorities (Officers and Employees) Act, 1926; (4) remuneration for registrars of births, deaths, and marriages; (5) fees for committal of dangerous lunatics; and (6) arrangements for the treatment of private patients in district and county hospitals. It was also decided that representations should be made to the Appointments Commissioners as follows: (1) that a recurring fee of £1 for medical candidates appearing before different Selection Boards is excessive; (2) that candidates with no prospect of being appointed should not be put to the expense of appearing before the Selection Boards unless on the expressed desire of the candidates; (3) that the physical examination appears unnecessarily severe, and that it should have a direct relation to the physical requirements necessary for the efficient medical discharge of the duties of the office to be filled; (4) that, if required, medical members of Selection Boards should receive reasonable remuneration. Amongst other business discussed was the question of pensions and fixity of tenure for medical officers in the Free State Army, and it was agreed that such medical officers should be engaged on a permanent and pensionable basis.

Medical Certificates and the School Attendance Act.

A good deal of trouble is being caused to medical practitioners in the Irish Free State, especially to those engaged in the poor-law service, by the working of the School Attendance Act. The Act provides that the production of a medical certificate of illness of the child should be a good defence in cases where the parents are prosecuted for non-attendance of a child at school. It makes no provision, however, for such certificates to be given or to be paid for, leaving the onus on the parents. In most cases the parent is unable to pay a fee for a medical certificate, and in many cases there is no medical man in attendance. Poor-law medical officers who were at first inclined to give certificates gratuitiously, as a matter of charity, have found that this kindness has increased their work unexpectedly. They are now sent for to visit children suffering from trivial illnesses in the hope that, in the event of questions being asked as to the child's absence from school, a certificate may be obtainable. The position is unsatisfactory, and the Irish Medical Committee has decided to recommend medical men to refuse to grant any certificates in school attendance cases.

Annual Dinner of the 83rd (Dublin) Hospital.

The annual dinner of the members of the Dublin unit of the 83rd (Dublin) Hospital, who served when the hospital was at Boulogne in 1917–18, was held last Saturday at the Royal College of Surgeons, Dublin. Colonel Sir William Taylor, who organised the unit, was in the chair, and 15 other members were present.

MEDICINE AND THE LAW.

Criminal Neglect of Health.

THERE have been several recent reminders of the penal consequences of omitting to obtain adequate medical aid for those who require it. A coroner, investigating a death due to cancer, found that treatment had been given by an untrained woman described as a herbalist. He pointed out that, if the patient's disease had not already been far advanced before such treatment began, the herbalist might well have found herself in the dock on a charge of manslaughter. A month ago at the Central Criminal Court a charwoman, aged 60, was charged on indictment and on a coroner's inquisition with the manslaughter of her daughter. Ten months earlier the daughter had disappeared; it was afterwards found that for the whole period she had been living in her mother's room in Walworth in a state of hideous neglect and

indescribable filth. The mother never informed anyone of her daughter's ill-health and never called in a doctor. The medical evidence proved death was due to blood poisoning consequent upon an ulcer of the hip-joint and general neglect, and that medical attendance would have saved the daughter's life. There was some doubt of the prisoner's sanity, but she was found fit to plead and take her trial. She was found guilty and sentenced to ten years penal servitude.

The same problem of legal insistence upon recourse to medical aid has arisen in cases which fall far short of manslaughter. Parents fail sometimes to realise the duty placed upon them by Section 12 of the Children Act. They may be genuinely affectionate and kind towards their children; they may be far from committing any act of deliberate cruelty such as that section punishes; but they are unaware that the section also makes it a misdemeanour to neglect a child "in a manner likely to cause unnecessary suffering or injury to health," and that these words have been held to cover a parent's refusal to allow an operation upon his child for the removal of adenoids or enlarged tonsils. A prosecution of this nature was brought last month against a Cumberland farmer and his wife. The medical authorities of the county had for four years been trying to have the operation performed, but the parents (though in other respects exemplary) invariably refused permission. The magistrates adjourned the case for a month in order that the operation might be carried out, the prosecution intimating that, if the operation took place, the summons would be withdrawn. Though the requirement of the law may take some people by surprise, there is no doubt whatever of the legal position. One of Mr. Justice Darling's last decisions in the Divisional Court made it perfectly clear that, if the justices are satisfied upon the medical evidence that failure to allow an operation would cause unnecessary suffering, the parents will be held responsible under the criminal law.

Public Conveniences at Railway Stations.

It has recently been stated that sanitary conveniences are no longer being provided at the stations of the underground railways in London. It seems to be the fact that, in rebuilding the St. James's Park and Piccadilly Circus stations (where the local authority has already provided sanitary accommodation in the street outside), the railway company concerned has made no such provision. Some may wonder whether London is already sufficiently equipped in this respect or whether it is not a mistake to miss any chance of maintaining and supplementing the existing facilities when the population (of both sexes) which daily frequents London seems to be constantly increasing. The old-fashioned urinal, too conspicuous perhaps for modern tastes, has largely disappeared from the surface of our streets. The needs of street traffic, as well as æsthetic considerations, have driven it underground where modern engineering manages to make a greater area available for greater requirements. But public conveniences cannot be made invisible without creating a situation of hardship, especially for strangers who visit the metropolis.

The Public Health Act of 1907 empowered local authorities (in districts where the Act was in force) to require urinals to be attached to all public-houses, refreshment rooms, and places of public entertainment. The statutory requirement for railways was less direct. The Railway and Canal Traffic Act of 1854 requires railway companies to afford reasonable facilities for receiving, forwarding, and delivering traffic, and in this context "traffic" is defined as including passengers. Naturally the scope of what is reasonable was much debated in the courts. In 1894, for example, Mathew J. declared a cloak-room to be the most reasonable of facilities at a railway station, and on the same occasion Collins J. (afterwards Master of the Rolls) spoke significantly of the "rising standard of convenience to which railway companies are obliged to conform." In the following year the West Ham Corporation, in an action against the Great Eastern Railway, elicited the decision that the omission to supply free water-closets for passengers' use was not a denial of reasonable facilities; this decision, however, was not unanimous, for Sir Frederick Peel (one of the Railway and Canal Commissioners) took the view that railways should be compelled to give such accommodation without payment. The underground railways in London are, of course, in a special position. Their space below ground is not unlimited; it may even be below sewer level; and their journeys are short. Nevertheless there seems no reason why the ever-increasing crowds of passengers should be denied facilities at any single station or be left in doubt as to which station contains what they require. The big London shops and stores long ago realised that the provision of lavatory accommodation was an attraction to customers if not indeed a positive duty. If the railways—whatever their freedom from statutory obligation—should take the same view, the public will undoubtedly be grateful.

Public Health Services.

DISSATISFACTION AT DUNDEE WITH PANEL PRACTICE.

WE learn from the report of the Dundee Panel Committee for 1927, which reached us just as the year turned, that the past year has been characterised by a feeling of dissatisfaction and insecurity among panel practitioners in the third largest Scottish burgh. This is at first sight surprising in view of the fact that the National Health Insurance scheme has become elsewhere such an integral part of our everyday life as to lead to tacit acceptance of its benefits. We need do no more than recall a remark made by the Royal Commission in 1926 ("We are satisfied that the scheme of national health insurance has fully justified itself and has on the whole been successful in operation") and the more recent statement of the Chief Medical Officer to the Ministry of Health that through this scheme "the four means of preventive medicine—compensation, early restoration, rejection of morbid sequelæ, and positive hygiene teaching—are being applied in one form or another to seven million patients every year." It is therefore a matter for earnest inquiry what has created the adverse feeling among the medical men and women who serve the large industrial population of Dundee. The feeling, it is stated, is due to a variety of causes, but it does not appear from the report that Dundee practitioners take objection to the terms of their service or to their contract with the insurance committee. The feeling seems to be due rather to the administration of the Act and of the Regulations framed under it. The most pressing cause of dissatisfaction is "the apparent inadequate remuneration received by the doctors." The remuneration this year, the report states, "promises to work out about 8*s.* 1½*d.* per head, which shows a still more marked reduction from the agreed average of 9*s.*, of which the only explanation offered is the alleged inflation." Now, whatever may be urged against the method of remuneration under the Acts, the method itself is clear and above board. Panel practitioners themselves are directly represented on the central distribution committee, which settles the quota for each year and distributes the available money (dependent upon the number of insured persons paying contributions) among those who treat insured persons resident in their area. The number of credits given to each practitioner does not, of course, necessarily represent a corresponding number of insured persons, for the number is a mean, as it is impossible for any practitioner to say how many persons are on his list at a particular time. The insurance committee's register is dependent upon notifications from approved societies of the names of new members, these being in turn dependent upon the reports of agents. Errors

made at the outset cannot be corrected until the surrender of contribution cards at the end of the period, when the processes of inflation and deflation, which are constantly going on, are balanced one against the other. It is unfortunate that the process of elimination does not take place at the same rate as the process of aggregation, for then the payment to a practitioner would be an exact multiple of the capitation fee by the number of insured persons on his list, but it is difficult to see how Dundee practitioners have arrived at the conclusion that they are receiving 8*s.* 1½*d.* instead of 9*s.* per head, seeing that the final settlement for the year cannot be made until the final credits are known. Inflation is unavoidable. It may be kept down to reasonable limits by clearance schemes, but no method has been devised to abolish the difficulties of registration which are due in large measure to ignorance and recklessness on the part of the insured population which has not learned to play its part in the scheme. Many insured persons lose their medical cards or refuse to surrender them when asked for. But the central pool is nevertheless duly credited with the fees and the whole of this pool is duly distributed among insurance practitioners.

Other causes of dissatisfaction are said to be the spread of erroneous information by agents of the societies, but this, however annoying, can hardly affect the practitioner's actions which are governed by the regulations and by his own sense of duty. Some concern at the increase in sickness benefit is inevitable, for it is so enormous as to imperil the proper administration of the scheme. It will, we fear, be found on investigation that there is a genuine increase in the amount of disabling sickness and that this explains in part the unparalleled demands upon medical service. But it should not be forgotten that insured persons are learning to attend in the earlier stages of illness and that more work of a preventive nature is being done. After these factors have been taken into account there may (or may not) be a margin of careless certification due to the coercion of practitioners by insured persons who desire to get some cash return for their contributions. The recent limitation on the right of insured persons to transfer at any time is a welcome addition to the practitioner's armoury against this kind of attack.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 31ST, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 247 (last week 255); scarlet fever, 1595; diphtheria, 1153; enteric fever, 29; pneumonia, 1802; puerperal fever, 34; puerperal pyrexia, 89; cerebro-spinal fever, 3; acute poliomyelitis, 8; acute polio-encephalitis, 1; encephalitis lethargica, 37; dysentery, 11; ophthalmia neonatorum, 61. There was no case of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 60 (14) from measles, 6 (0) from scarlet fever, 32 (10) from whooping-cough, 53 (13) from diphtheria, 59 (19) from diarrhœa and enteritis under two years, and 128 (24) from influenza. The figures in parentheses are those for London itself. If the return were complete it would imply an agreeable drop in the mortality from measles, but the figures are admittedly affected by delayed registration owing to the holidays. Of the 46 fatal cases outside London 9 were reported from Bristol, 11 from Manchester, 2 from Salford, 4 from Warrington, and 3 from St. Helens; while the figures from Glasgow and Dublin for the same week were 45 and 13 respectively. The deaths from enteric fever outside London occurred in Preston and Darlington, one each. The number of stillbirths registered during the week was 283 in the great towns, including 49 in London.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. W. J. Colborne to *Impregnable*.
Surg. Lt. C. T. Hyatt to *Vivid*.
Surg. Comdr. L. F. Cope is placed on the retd. list with the rank of Surg. Capt.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Comdr. R. Wilbond is placed on the retd. list and to be Surg. Capt. (retd.).
Surg. Lt. R. Hall to be Surg. Lt.-Comdr.
Proby. Surg. Lt. R. L. Stubbs to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

The undermentioned are apptd. Cols. Comdt.: Maj.-Gen. Sir M. P. C. Holt, late R.A.M.C., vice Maj.-Gen. Sir W. G. Macpherson.
Maj.-Gen. Sir S. G. Guise-Moores, retd. pay, late R.A.M.C., vice Lt.-Gen. Sir A. T. Sloggett.
Lt.-Col. A. C. Adderley, half pay list, late R.A.M.C., retires on retd. pay on account of ill-health.
Maj. H. H. A. Emerson to be Bt. Lt.-Col.
Maj. B. H. H. Neven-Spence retires on retd. pay.
Lt. (on Prob.) T. F. M. Woods from the secd. list, is restd. to the estabt.
Temp. Lt. S. M. Burrows to be Lt. (on prob.).

ARMY RESERVE OF OFFICERS.

Lt.-Col. H. B. G. Walton having attained the age limit of liability to recall, ceases to belong to the Res. of Off.
Lt.-Col. R. G. H. Tate ceases to belong to the Res. of Off., on account of ill-health.

INDIAN MEDICAL SERVICE.

The undermentioned officers retire: Col. G. Browse and Lt.-Col. W. W. Jeudwine.

COLONIAL MEDICAL SERVICES.

Dr. W. E. Burton, District Medical Officer, St. Kitts, to be Principal Medical Officer, British Honduras; Dr. C. T. MacCarthy, late Government Medical Officer, British Guiana, to be Medical Officer, Federated Malay States; Dr. D. Duff, Senior Medical Officer, to be an Assistant Director of the Medical Service, Gold Coast; Dr. S. L. Brohier, Medical Officer, to be a Senior Medical Officer, Gold Coast; Dr. K. K. Grieve, Medical Officer, to be a Senior Medical Officer, Nigeria; Dr. W. E. Glover, Medical Officer, to be a Senior Medical Officer, Nigeria; Dr. R. B. Hawes, Medical Officer, Straits Settlements, to be Professor of Medicine in the College of Medicine, Singapore; and Dr. V. L. Ferguson, Resident Surgeon, Colonial Hospital, Grenada, to be Chief Medical Officer, St. Lucia. Mr. J. P. M. Donelly, Mr. W. S. Thomas, and Mr. A. Reid to be Medical Officers, West African Medical Staff; Mr. A. V. G. Price to be District Medical Officer, British Solomon Islands Protectorate; Mr. E. C. Morris and Mr. W. E. Holmes to be Medical Officers, Federated Malay States; Miss V. E. K. Stuart to be Lady Medical Officer, Federated Malay States; and Lt. E. L. Robert to be Medical Officer, Straits Settlements.

DEATHS IN THE SERVICES.

Lt.-Col. Francis Edward Swinton, C.I.E., late I.M.S., whose death at the age of 60 is reported from Bombay, was the eldest surviving son of the late Robert Blair Swinton, of the Madras Civil Service. He received his medical education at St. Bartholomew's Hospital, and after qualifying with the conjoint diploma entered the Indian Medical Service and was for some years medical officer of the 28th Bombay Pioneers. Later he acted as personal assistant to the principal medical officer of the Bombay Command, and was medical storekeeper for the Government of Bombay. Subsequently he became Deputy Director-General of the Indian Medical Service, and afterwards medical storekeeper to the Government of Madras. He received the C.I.E. in 1919 and retired in 1922.

Major-General Sir James Maher, late R.A.M.C., who died on Jan. 7th, aged 69, was the youngest son of Mr. John Edward Maher, of Liskelly, Galway. Educated at Monaghan and Dublin, he qualified as L.R.C.P. & S. Edin. in 1883, and joined the Army Medical Service in 1885, when he served in the Sudan operations. Later he took part in the Ashanti campaign of 1895–96. In the late war he was successively Deputy Director of Medical Services, Lines of Communication, Mediterranean Expeditionary Force; Director of Medical Services, Egypt; and Deputy Director of Medical Services, Irish Command. He received the C.B. in 1916 and the K.C.M.G. in 1918, in which year he was promoted major-general. Sir James Maher married, in 1902, Gertrude, daughter of Mr. J. F. Browne, of the Bengal Civil Service.

Correspondence.

"Audi alteram partem."

GASTRO-DUODENAL ULCERATION.

To the Editor of THE LANCET.

SIR,—Prof. MacLean and his collaborators have performed a useful service by publishing a series of cases of gastric and duodenal ulcer, with radiograms before and after treatment, in which healing has been brought about by medical means. They thereby confirm the published and unpublished results of many physicians in this and other countries. The value of their conclusions would, however, have been greatly enhanced if they had not been partly based upon assumptions which seem to me unwarrantable in the present state of our knowledge.

The first assumption is embodied in the use of the word "cure"—always an unwise word for the physician to employ excepting in specific diseases for which we possess a specific remedy. Medical treatment can undoubtedly expedite the healing of an active ulcer and in a high proportion of well-selected cases this healing may be long enduring or permanent, but in my experience it is not justifiable to speak of a group of cases of gastric ulcer as "cured," and of their recurrences as "extremely rare" when they have only been watched for periods of a year or less. Most of the cases reported in Prof. MacLean's paper began their treatment less than a year ago. If he will report again on the same and additional cases in five and ten years' time, the efficacy of his treatment and after-treatment will have stood a better test and he will then be better able to assess factors favourable or adverse to the permanent healing of ulcers.

A second assumption is that the effects of the treatment are to be attributed to the alkalis as employed. From the text one would gather that the quick disappearance of symptoms and the later disappearance of radiological evidences of ulceration were to be attributed to this particular method. As a matter of fact, the majority of ulcer patients lose their symptoms within 48 hours of going to bed on a soft diet with properly spaced feeds, and ulcers can also be shown (radiographically) to heal in a few weeks on a variety of treatments in which the intensive employment of alkalis does not necessarily play a part.

A third assumption is that the control of acidity can "easily" be achieved by this or any other method. Unless it can be shown with the aid of the continuous test-meal that this has been accomplished in a number of cases with varying degrees of gastric acidity, this statement must be accepted with reserve. Prof. MacLean speaks of alkalosis as a bogy. It may be rare nowadays, but those who have followed the literature and have themselves seen patients both slightly and seriously ill from alkalosis in the early days of intensive alkaline therapy will not be prepared to agree with him in this. Furthermore, there are other contra-indications to intensive alkaline treatment besides renal disease and chief among these is pyloric stenosis, some cases of which he seems to suggest may be suitable for treatment by this method. Finally, it is difficult not to read into the paper as a whole an undercurrent of assumption that the method has a claim to originality. In this regard it is a pity that it includes no proper reference to the writings of Sippy or Hurst.

I do not advance these criticisms from any sense of opposition to medical treatment, of which (with judicious selection of cases) I am a staunch advocate, but because I believe it is of the greatest importance in matters of this kind to base our contentions on sound and well-weighed evidence. We are looking to the units, with all their facilities for research and follow-up inquiries, whenever possible to supply us with such evidence.—I am, Sir, yours faithfully,

Wimpole-street, W., Jan. 7th, 1928. J. A. RYLE.

To the Editor of THE LANCET.

SIR,—We have for so long practised and taught the important principles embodied in the paper by Prof. MacLean and his co-workers in your issue of Jan. 7th, that we hasten to express our appreciation of this additional confirmation of the value of the treatment of gastric and duodenal ulcer which we owe to the genius of the late Bertram Sippy. The use of alkalis in gastric disease dates back at least to the sixteenth century, the principle of small frequent feeds had been employed with uncertain success for fully 50 years, it was the application of the two principles with rigour and logic that enabled Sippy to evolve the treatment which has yielded the gratifying results experienced by so many observers in all countries during the last decade.

The evidence that peptic ulcer, even when deeply penetrating the tissues in the region of the lesser curvature of the stomach, will heal when so treated has become abundant since radiography has been employed in following up the cases. In conjunction with Dr. F. G. Nicholas, one of us published a communication in the *British Medical Journal* last June giving the results in a series of such cases studied with the aid of X rays at the Middlesex Hospital, and including a survey of existing literature on the subject. The papers by Einhorn and Crohn, and by F. W. White in recent numbers of the *American Journal of Medical Sciences*, and by Moutier and Porcher in the *Presse Médicale* of Sept. 7th, may be taken in conjunction with Prof. MacLean's article as supplying still later refutation of the astonishing doctrine, upheld by certain surgeons, that gastric ulcers can never be made to heal.

We feel, however, that there are two very important points to which Prof. MacLean and his co-workers give insufficient attention in their article; the first is, that foci of infection, particularly in the mouth, must be eradicated. It is widely accepted that such foci are the commonest causes of ulceration by producing bacterial emboli, and unless they are removed there must always be grave risk of recurrences. The second point is the importance of diet. The administration of small, easily digestible feeds of high caloric value, at short intervals, not only diminishes both peristalsis and the excitation of secretion, but repeatedly provides the stomach with a neutral material, whose buffers tend to lower acidity to an extent almost as great as that produced by the alkalis. We are in agreement with many British and foreign observers, of whom Alvarez may be quoted as a prominent exponent, in finding that if a convalescent patient is trained to take a little milk or to nibble a dry biscuit between his small meals, he will remain as free of symptoms as if treated with alkali on a less careful diet. Moreover, if the patient comes from a class where it is impossible to expect him to continue treatment in a thorough manner for a long period, it is easier to persuade him to take dietetic precautions than to submit to the use of medicines for more than six months.

Embodying as it does nothing more than the main principles of the Sippy treatment, the paper of Prof. MacLean and co-workers is one with which practically all physicians experienced in the modern treatment of gastric ulcer will agree. It is perhaps to be regretted that a paper has come from a medical unit without reference to the extensive current literature on this subject, and we feel, in addition, that longer experience with the modern method will lead Prof. MacLean and his co-workers to be more judicious in their use of the word "cure" unless they pay increased attention to the factors of sepsis and diet to which we have referred above.

We are, Sir, yours faithfully, T. IZOD BENNETT.

London, W., Jan. 9th, 1928. ALAN MONCRIEFF.

DEATH REGISTRATION AND THE FATALITY-RATES OF SMALL-POX.

To the Editor of THE LANCET.

SIR,—It is an almost universal medical belief (and I share this belief) that the fatality-rate among persons attacked by small-pox is much greater, age for age, among the unvaccinated than among the vaccinated. An apparent contradiction is furnished in the small-pox statistics [1] of England and Wales for the four years 1923-26. The following table furnishes the numbers of cases of "small-pox" in vaccinated and unvaccinated persons over 15 years of age, together with the numbers of deaths and the fatality-rates per cent. for each of these years and for the whole period. The comparison is confined to age 15 and over for the simple reason that practically all the cases under 15 are among the unvaccinated.

	VACCINATED.			UNVACCINATED.		
Year.	Cases over 15 years.	Deaths.	Case-mortality per cent.	Cases over 15 years.	Deaths.	Case-mortality per cent.
1923	369	2	0·5	734	2	0·3
1924	635	2	0·3	1241	—	—
1925	933	3	0·3	1824	—	—
1926	2073	6	0·3	*3116	2	0·06
Totals	4010	13	0·3	6915	4	0·06

* Including 94 cases "doubtful" as to vaccination state.

The figures are, of course, too small to carry any great weight, but it will be observed that in each year the fatality-rate was greater among the vaccinated than among the unvaccinated. In a total for these four years of 11,019 cases, 4010 occurred among the vaccinated with 13 deaths (a fatality-rate of 0·3 per cent.) and 6915 occurred among the unvaccinated with four deaths (a fatality-rate of 0·06 per cent.) That is to say, the fatality-rate among vaccinated cases was just five times as great as among unvaccinated cases. It would be interesting to read possible explanations of this statistical anomaly which your readers may have to offer. Clearly some explanation is required, in justice to vaccination, and if, as I believe, the anomaly is due to faulty registration, the figures seem to me to call urgently for:—

1. A special inquiry into the *true* cause of death of all fatal cases of "mild small-pox" in this country.

2. Revision of the rules of death registration under which a death certified by the doctor in attendance as due to chronic nephritis, cerebral hæmorrhage, or other disease or condition unconnected with small-pox is registered and entered in the vital statistics as a death from small-pox.

I am, Sir, yours faithfully,

R. P. GARROW,
Medical Officer of Health and School Medical Officer,
Jan. 4th, 1928. Chesterfield.

[1] Quoted from the Annual Reports of the Chief Medical Officer, Ministry of Health, 1923 (p. 37), 1924 (p. 37), 1925 (p. 38), 1926 (p. 39).

AURAL SYSTEMIC INFECTION.

To the Editor of THE LANCET.

SIR,—In your issue of Dec. 31st, 1927 (p. 1390) Mr. R. D. Owen describes a case of "aural systemic infection" and attributes the nephritis, arthritis, bronchitis, and empyema to the mastoiditis which preceded them. Now, otitis media and the other complications are frequently met with nowadays in general practice as a complication of sore-throat. Any of these complications may occur singly, or in conjunction in the same patient as the result of an attack of "influenza" or tonsillitis, and I would suggest that in Mr. Owen's case the mastoiditis and the other complications were not in the nature of cause and effect but were all manifestations of an infection entering the system probably via the throat. Mr. Owen, indeed, though claiming that the "septic focus" was in the mastoid, yet, in the course of his description of hæmorrhagic mastoiditis, admits himself that "the disease itself is a systemic infection," which amounts to much the same thing as my suggestion.

I am prompted in my comment by the fact that early in 1926 I saw a young man who, during an epidemic of tonsillitis, was taken ill with the latter. Complications in order were otitis media, nephritis, aseptic pulmonary infarction, and peripheral thrombosis. There was also profound anæmia in my case—the man looked as if he had had a severe internal hæmorrhage—which I attributed to a hæmolytic streptococcus. He got well without any operative procedures and is well 23 months later. At the time I had other cases with pulmonary infarction and nephritis which had followed on tonsillitis and influenza; none of these latter had otitis media.

Six months previously to seeing the above case I saw a woman who after influenza and tonsillitis had, like the man described above, nephritis and pulmonary infarction, but not otitis. Other cases of nephritis of similar nature were seen the same week; not one of these had otitis. Arthritis and empyema I have seen follow tonsillitis. Otitis media is such a common complication of these sore-throats that it is not to be wondered if one sometimes sees it in conjunction with the other complications as in the man described above. Mr. Owen says very little about the previous history of his patient; whether, as is highly probable, she had had tonsillitis. There is no mention as to whether a swab of the throat was taken.

The failure of the operative procedures adopted in Mr. Owen's case to stay the march of the blood infection is to be explained, not by the incompleteness of the operative measures, but by the probability that the germs were entering the circulation not via the mastoid but via the upper air passages—a region where, in these days of endemic influenza, many mysterious infections of the body have their origin.

I am, Sir, yours faithfully,

Aberdare, Jan. 7th, 1928. AMBROSE W. OWEN.

VESALIUS AND THE INQUISITION MYTH.

To the Editor of THE LANCET.

SIR,—In the very interesting lecture reported in THE LANCET of Nov. 12th, 1927, Sir Farquhar Buzzard raises many contentious issues. He commits himself to the statement that "Vesalius . . . was condemned by the Inquisition as a sorcerer." The phrase is introduced almost as an obiter dictum, something which everyone knows and need only be mentioned in passing. But what are the actual facts? The whole story stands or falls by a single document; an excerpt from a letter alleged to have been written by Herbert Languetus in Paris to Caspar Peucer in Wittenberg on Jan. 1st, 1565. This excerpt runs as follows:—

> There is a rumour that Vesalius is dead. No doubt you heard that he had gone on a journey to Jerusalem, but I have had a letter from Spain that the cause of his pilgrimage was of a remarkable nature. A Spanish grandee had been treated by him, and upon the death of the patient Vesalius, because of his uncertainty as to the nature of the malady, asked the relatives' permission to open the body. The request was granted, but on opening the body the heart was found to be still beating. Thereupon the relatives, not content with accusing him of murder, denounced him also to the Inquisition on the score of impiety, to the end that their vengeance might be more complete. Since the facts of the case were undisputed the mistake of the great physician could not easily be excused, and the Inquisition was so set on punishing him that the authority and even the prayers of the king could scarce avert the danger. At length, however, in deference to the supplications of the king and of the whole court, he was pardoned on condition that he should expiate his crime by making a pilgrimage to Jerusalem and Mount Sion.

Before considering the above excerpt a few dates will be useful. Vesalius left Madrid early in March, 1564. As he intended to live for the future in Brussels, his wife, family, and furniture accompanied him in

his overland journey to the north-eastern frontier of Spain. In the south of France he parted from the cavalcade, the rest passing on to Belgium while he directed his course to Venice, which he reached about the end of April. Early in May he sailed for the Holy Land. There is no information thereafter till the beginning of December, when some of his fellow pilgrims returning to Belgium brought word that he had died at Zante on Oct. 15th. It might well be, therefore, that the rumour of his death did not reach Paris till the end of December.

From all this, however, it will be evident that the facts alleged to have been written to Peucer must have happened at least nine months before. We may pass over obvious difficulties in the story; that Vesalius was not likely to mistake a living body for one that was dead; that even had he made the mistake the jurisdiction lay with the ordinary courts and not with the Inquisition. But accepting the story as it stands, its remarkable nature, the large number of persons who knew of it (the whole court at least), the unenviable reputation of the Inquisition itself—it is very difficult to understand that not a hint of the drama was heard till Jan. 1st, 1565, probably a year after its occurrence. It may, of course, be urged that the argument from silence is not very convincing, and that after all a year is not a long time. But the argument from silence does not depend in this case on one year, but on 56 years, for the story was not heard of till 1620, when the excerpt translated above was printed by Melchior Adam in his *Vitae Illustrium Medicorum*. This long silence is surely convincing even apart from the events that crowded that half century. Languetus was the representative of the Elector of Saxony, the head of Protestant Europe, to whom any tale against the Inquisition would be welcome. Languetus was a copious correspondent; volumes of his letters, diplomatic and private, have been published. There is one to Mordeisen on the very day (Jan. 1st, 1565), long and chatty, but neither in it or anywhere else is to be found Adam's excerpt, which was printed 39 years after his death. Peucer, too, was bound to have repeated the story if the excerpt ever reached him. After the death of his father-in-law, Melanchthon, he continued the latter's work as the centre of correspondence for the various Reformers, but to none of them did he re-tell the tale. The polemic of that period was fierce to a degree that few moderns can conceive. The Inquisition was loathed by Protestants, especially in the low countries, where the personal friends of Vesalius lived. His widow married again, and the brother of her second husband was a devoted partisan of William of Orange. The Inquisition in Spain courted publicity in regard to its punishments and was no respecter of persons; the Archbishop of Toledo, the Primate of Spain, was during this time its prisoner.

Nor was it that Vesalius had slipped out of public mind. Protestant Europe had ceased to believe in the efficacy of pilgrimages and so refused to think that others could act from such a motive. Thus, while it was agreed that a pilgrimage was the ostensible object of the journey, search was made for a hidden reason. So we find it variously stated: (1) that he wanted to study drugs in the East; (2) that he was tired of court life; (3) that in this way he anticipated his dismissal by Philip; (4) that it was to win a bet; (5) that it was to get away from a nagging wife, &c. None of these writers would have required to make a guess if they had heard about the Inquisition. The history of this tribunal has been told at length, and neither Llorente nor Lea can be said to be biased in its favour. Long lists of its real and supposed victims have been drawn out, but the name of Vesalius does not figure therein.

This long universal silence in regard to an event which from so many different points of view clamoured for record and comment can have only one explanation—viz., that it did not take place, and that the excerpt given by Adam is a forgery. It still finds its way into works of reference—e.g., the eleventh edition of the Encyclopædia Britannica—because these books usually copy from one another. It really owed its life to Boerhaave and Albinus, who gave it in their introduction to the Opera Omnia of Vesalius, published by them in 1725. The undoubted merit of this edition gained it widespread popularity, and so the story came to be generally accepted, especially perhaps because of the long and solemn comment they make on it, beginning—

> Atque ita tandem dira sacerdotum tyrannis horribili mortis genere Virum sustulit, cui parem nulla tulerunt secula, cujus memoriae grata assurget medicina, quamdiu sibi curae erit sua cuique sanitas.

It is only fair to add that the most competent authorities on Vesalius—e.g., Burggraeve, Wauters, and Roth—dismiss the story as fantastic.

I am, Sir, yours faithfully,

Edinburgh, Dec. 27th, 1927. G. MATHESON CULLEN.

THE PREVENTION OF DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—During the year which has just passed rather more than 1800 cases have been sent into this hospital with a diagnosis of diphtheria. Admittedly, a considerable proportion of the total were either examples of other conditions or of so-called "bacteriological diphtheria"—the diagnosis having been based upon the result of a morphological examination of a culture from a swab and not upon clinical evidence of the disease. With one exception the staff—medical officers, nurses, and maids—concerned in the treatment of these 1800 cases was known to be immune—i.e., Schick-negative to diphtheria. The members of the staff had either been found to be Schick-negative on joining or had been rendered so by means of toxoid-antitoxin before being allowed to work in or about diphtheria wards. The exception, a markedly Schick-positive medical officer, elected to "risk it"—and contracted clinical diphtheria. Otherwise there has been no single case of diphtheria amongst any section of the staff for the past 12 months. As Dr. Burton points out in your issue of Jan. 7th, the paper for which I was jointly responsible, and to which Dr. Rowland alluded, closed, as it in fact opened, upon the note of active immunisation against diphtheria. Tonsillectomy in the case of the carrier of *virulent* diphtheria bacilli was advocated "until the active immunisation of non-immunes is adopted in England upon an adequate scale."

I am, Sir, yours faithfully,

E. H. R. HARRIES,
Medical Superintendent, Birmingham City Hospitals.

Jan. 7th, 1928.

TENTERDEN PARATYPHOID EPIDEMIC.

To the Editor of THE LANCET.

SIR,—I have read with interest the leading article in your issue of Dec. 31st, 1927, upon the prevention of paratyphoid. Of the 53 cases notified in connexion with the Tenterden epidemic, we found that 43 (or 83 per cent.) had had milk from the creamery to which the Watermill Farm supply was sold wholesale. I fully agree with your remarks with regard to the difficulty of obtaining a satisfactory water-supply at outlying farms, both of the quality and quantity required for the scrupulous cleanliness which should appertain to a good cowshed and dairy. The farm in question is an example, the owner cannot afford the cost of laying on company water to his farm, so has decided to give up milk production. This is unfortunate, and shows the difficulty health officials are confronted with; when the Dairy and Cowshed Orders are strictly enforced the small farmer is driven out of the milk production business, and the already too small supply of milk available for the consumers is lessened. It is not always easy to condemn a well at sight. In a village in the South-West Kent area recently we had paratyphoid occur. The chemical analysis of the well showed the water to be of "fair organic quality." As company water was readily available I recommended that the well should be

closed. The rural district council decided accordingly, but this decision was reversed by the magistrates on appeal from the parish council.

With regard to milk production, what regulations cannot accomplish education, we hope, will. In this county, clean milk competitions, which are organised by the Kent County education and agriculture committees conjointly, are proving very successful. Some small farmers who had almost been frightened out of the milk business by the new Government dairy regulations have now, after a course of instruction on clean milk production, decided to carry on. In several cases, in spite of somewhat primitive equipment and none too structurally satisfactory cowsheds, a milk of a high standard of cleanliness is being produced.

In your remarks on the Tenterden epidemic you do not comment on the necessity of early Widal tests being made upon cases of doubtful illness occurring on dairy farms. The patients at Watermill Farm had been seen by three medical practitioners and the agreed diagnosis was "bacillus coli infection." Though the first case was seen on July 5th it was not till August 11th, the second day of the epidemic, that Widal tests were taken by the medical attendant on the recommendation of the medical officer of health; all the tests were positive. We had stopped the milk-supply on August 10th.

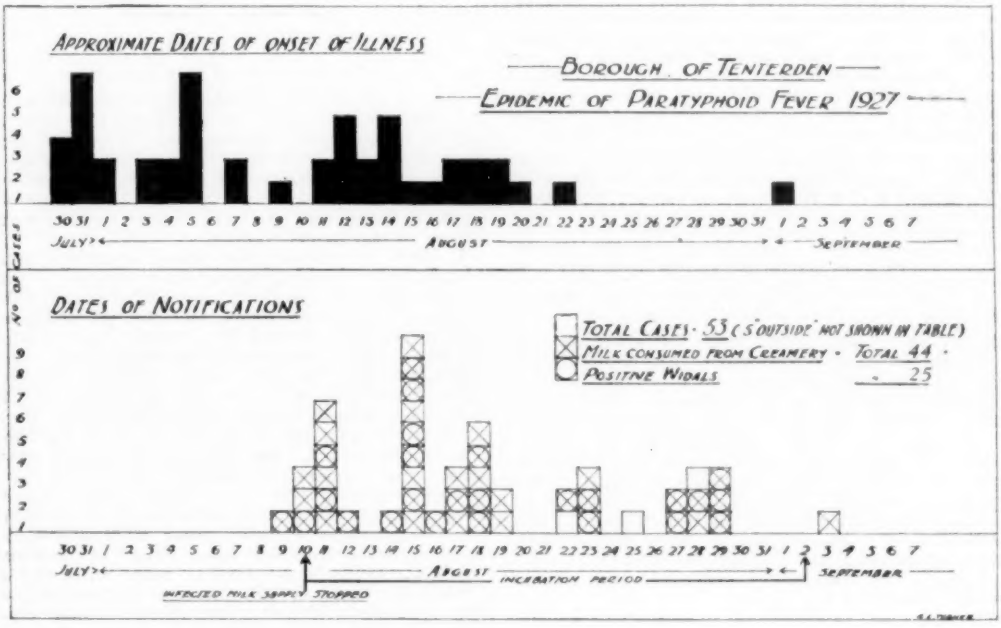
The conclusions I gave in my report upon the epidemic, together with the reproduction of the graph I had prepared, may be of interest. This shows very clearly how the cases ceased within the typhoid incubation period of 5 to 23 days from the date the milk-supply from the farm was stopped. An epidemic such as this makes one appreciate the ready facilities provided at the county laboratory by Dr. A. Greenwood. Previously I did not advocate the pasteurisation of milk because of the consequent lessening of the vitamin content. Now this epidemic has convinced me of the necessity of pasteurisation every time. I note that the large dairy combines, even with their careful methods of production, consider this a necessity; much more is it so in the case of the small producer and distributor.

It is satisfactory and greatly to the credit of the doctors and nurses dealing with the cases treated at home and in the hospitals that there were no fatal cases.

Three important lessons are to be learned from this epidemic:—

(1) I consider that, in view of the ever-present possibility of milk being a vehicle for the spread of infectious disease, medical practitioners should treat any illnesses occurring on dairy farms and premises with great care. In fact, it might be advisable to treat any cases of illness on such farms as infectious diseases until it is definitely proved that they are not. It is also advisable for doctors to make ready use of the facilities offered by the county laboratories.

(2) Whilst recognising the considerable advance made in the production and sale of milk with regard to cleanliness and handling, persons engaged in this business cannot be too careful. To obtain a perfect milk-supply is not a matter of palatial cowsheds, but is from first to last a matter of education in what one might describe as "surgical" cleanliness. Perhaps it is too ideal to expect the aseptic cleanliness of the hospital; nevertheless, if milk is to be considered safe for infants and invalids in particular, dairy and farm cleanliness must be of a much higher standard than it is at present.



An absolute essential of reasonable dairy cleanliness is, of course, a plentiful and pure water-supply. Meantime, in my opinion, the only safety lies in commercial, or failing that, domestic pasteurisation. I would just add that to destroy all organisms, including typhoid and tubercle bacilli, in milk, this should be retained at a temperature of not less than 145° and not more than 150° F. for at least half an hour, and be immediately cooled to a temperature of not more than 55° F. This means a little trouble, but better that than the great trouble and inconvenience, to say the least of it, of an epidemic such as has been experienced in the borough of Tenterden.

(3) A very important business matter arose in connexion with this epidemic, which resulted in the County Court case of "Clarke *v.* Jefferies," heard by Judge Moore Cann at Eastbourne. At this case the medical officer of health and the sanitary inspector were subpœnaed to attend and give evidence. It appears that Jefferies was negotiating for the sale of "Ye Olde Creamery" dairy business at Tenterden on August 7th, and that when the epidemic broke out on the 10th the purchaser refused to complete, and sued the vendor for the return of the deposit money. Apart from the public health standpoint, with which we only are concerned, no further comment is required to emphasise the necessity of all persons engaged in the production and distribution of milk taking every possible step in their commercial methods to prevent such an occurrence in the future.

As health officials we do not wish to discourage milk production, but the reverse; the people, and especially the children, do not drink enough milk.

We support the dairy trade's slogan, "Drink more milk," but it must be clean milk and guaranteed to be free of all contamination or infection.

I am, Sir, yours faithfully,

S. NICOL GALBRAITH,
Medical Officer of Health, S.W. Kent Health Area.

Tonbridge, Jan. 2nd, 1928.

AN INDIAN REMEDY AGAINST DYSENTERY.

To the Editor of THE LANCET.

SIR,—The information given in your annotation last week (p. 38) on an Indian remedy against dysentery can be usefully supplemented by experience of *Holarrhena antidysenterica* bark in this country. Burn[1] gave an account of the physiological action of conessine, holarrhenine, and oxyconessine, and Pyman[2] described the chemical properties of holarrhenine and conessine. The protozoocidal action of conessine and of the associated tannins has been investigated by us.[3] The drug is better known under the native name "Kurchi" than by the botanical name used in your article. At our suggestion it was tried in the form of "Kurchi extract" by Dr. Willmore, and in a lecture which he gave before the Royal Society of Tropical Medicine and Hygiene[4] he reported on it as follows:—

> "I have used this extensively and consider it to be of real value. It does not eradicate the infection, but it at least keeps the amœbæ under control in all but the exceptional cases mentioned. It is my practice to use it as a routine after the acute symptoms have been subdued by emetine medication, and I have found that the patients remain comfortable and free from clinical dysentery as long as they continue to take it. Their stools may even cease to show cysts as long as it is being taken, but its discontinuance is apt to be followed by a relapse."

We had previously found that the alkaloid contained in the bark—viz., conessine—was equally toxic in vitro to free-living amœbæ, as was emetine, and we therefore suggested to Dr. Willmore that the pure alkaloid conessine should be tried, but this, in two cases, proved to be far less effective than the extract, an experience now confirmed by Caius and Mhaskar. We have since then made a number of experiments to ascertain whether the toxicity of conessine to protozoa is the same as that of the alkaloid when the conessine is administered in other forms than as simple salts, but none of these nas proved successful. So far and for the present it seems to be desirable to use the extract of the bark.

Major Knowles, professor of protozoology to the Calcutta School of Tropical Medicine, who has done a great deal of work on this subject in India during the last two years, finds the extract satisfactory, and, as it can be administered in compressed form, it avoids the serious difficulties presented by the modes of administration suggested by the authorities quoted in your article, which involve the daily ingestion of several fluid ounces of a peculiarly nauseating decoction of the bark or a quarter of an ounce of an equally unpleasant dry powdered bark, methods perhaps possible with patients in the Middle Ages, but hardly feasible to-day, except perhaps with primitive peoples who like their medicine to taste "strong." Major Knowles, as the result of the treatment of two cases of amœbic dysentery with Kurchi extract in solid form, states[5] that in both cases the dose was tolerated very well, the amœbic infection appeared to be eradicated, and cure was apparently both rapid and complete. The same author[6] after several years' experience with this drug states: "On the other hand, it is doubtful whether emetine alone will ever entirely eradicate an infection with *E. histolytica*, and its use requires to be supplemented by the use of such a drug—e.g., as Kurchi."

[1] Jour. of Pharmacol., 1915, vi., 305.
[2] Trans. Chem. Soc., 1919, cxv., 163.
[3] Brit. Med. Jour., 1922, i., 993; Trans. Roy. Soc. Trop. Med. and Hyg., 1923, xvii., 61; and Trans. Roy. Soc. Trop. Med. and Hyg., 1924, xvii., 378.
[4] Trans. Roy. Soc. Trop. Med. and Hyg., 1923, xvii., 13.
[5] Ann. Report Calcutta School of Trop. Med., 1924, p. 70.
[6] An Introduction to Medical Protozoology, 1928, p. 93.

It is perhaps also of interest to mention that in a recent paper on the chemistry of conessine Dr. J. L. Simonsen mentions[7] that he had to give up work on the alkaloid owing to a severe attack of giant urticaria, probably caused by certain derivatives of the alkaloid. This appears to be the first recorded instance of the kind, although a considerable number of chemists have worked with conessine. It is, however, possible that the real cause of the attack in Dr. Simonsen's case was the methyl iodide, used in the process of "exhaustive methylation" which he applied to the alkaloid. Experience in these laboratories shows that some people possess skins highly susceptible to the action of methyl iodide.

We are, Sir, yours faithfully,

T. A. HENRY,
Director, Wellcome Chemical Research Laboratories.

H. C. BROWN,
Wellcome Bureau of Scientific Research

Jan. 9th, 1928.

COMMISSIONS IN THE R.A.M.C.

To the Editor of THE LANCET.

SIR,—I see that applications for commissions in the R.A.M.C. should be in by the 20th, and that there will be no entrance examination. What a change in 40 years! In 1885 64 commissions were allotted among the three Services (the same examination for all), and the sixteenth on the list, the junior of the eight for India, was the only one of us to become a Fellow of the Royal Society.

I desire to submit that many students make a mistake in not joining one or other Service. Among my associates in Edinburgh were Sir Charles Bedford (Indian), Sir David Bruce and Sir W. Macpherson (Army), and Sir Patrick Handyside (Navy), who all did well. There are drawbacks everywhere. An old friend, recently honoured after long service by his fellow townsmen, writes to me this week: "I have had a nice time in a good-class practice, but I would never advise any of my friends to go in for the life of a family doctor," and goes on to express envy of panel practitioners, specialists, and me! in the Service!—anyone but his successful self. I served 26 years in the Navy and six in the Army from 1916. When we joined we got under £200 a year, and research was frowned on; now a lieutenant, R.A.M.C., seems to get £500 to begin with, and £570 if married; there are laboratories everywhere, extra-paid specialists almost everywhere; senior officers, better trained and encouraged, have a far better position, while the juniors (the talk is this week of the R.A.M.C.) have the Millbank mess to stay in if they are in London on leave, where they meet other officers of the Corps, especially the research workers, and have the run of the fine library. I am glad to say a young officer told me recently he had joined the Corps because he had heard me lay out to the Royal Medical Society the advantages of the Services. They offer great fields for research to capable officers, especially the Indian Service which has so much disease to treat. Practice improves output in science as in games, so that Service has produced in my time Ross, Bedford, Bannerman, Freyer, Rogers, Carter, Elliott, McCarrison, to name a few, and though juniors regret some conditions, their difficulties will hamper less the tougher men. A temporary officer, like myself, in 1922 applied to join the R.A.M.C. "Why?" said his colonel. "Well," he said, "I suppose it is because I want to see the world on the cheap." Not a bad reason, but there are others.

One caution should be given. We joined with less than £200 a year and a promise, after 20 years, of a £365 pension; wealth it seemed beyond the dreams of avarice. They start at £500, still with only the same £365 ahead. They must save or else insure.

I am, Sir, yours faithfully,

W. E. HOME,
Fleet Surgeon, R.N., and Major, R.A.M.C.

Piccadilly, W., Jan. 7th, 1928.

[7] Jour. Chem. Soc., 1926, p. 2124.

AN OPERATION FOR THE ALLEVIATION OF DEAFNESS.

To the Editor of THE LANCET.

SIR,—Major Nesfield claims that the operation for the alleviation of deafness which he describes is not only simple but also satisfactory. The idea of opening up the middle ear by a new route in cases of severe Eustachian obstruction when the tube fails to function is by no means original. As an experimental procedure it was tried many years ago, by myself amongst others, with such discouraging results as to have long ago been abandoned. Apart from pathological considerations, the practical difficulty of maintaining a patent channel to the posterior end of the middle ear cleft is such that in the great majority of cases the middle ear proper becomes again shut off by contraction of tissue or fusion of granulations. Moreover, experience shows that epithelialisation of the bony tract is not such a simple procedure as Major Nesfield would have us believe.

The physiological function of the Eustachian tube is the ventilation of the middle ear, ventilated as it is during every act of swallowing in normal individuals. When chronically closed, this ventilating function is in abeyance with consequent damage to the contents of the tympanum. Major Nesfield states: "My attempt has been to alleviate deafness by operating on patients with normal ear drums and whose middle ears are not inflamed or purulent." Also he says: "I make this channel on ears healthy except for deafness." I fail to see how any patient with marked Eustachian obstruction, the raison d'être of his operation, can have normal ear drums. Chronic Eustachian obstruction is invariably accompanied by marked retraction of the membrana tympani, and as a rule by loss of lustre, alteration of the light reflex, ossicular and other changes. If Major Nesfield's patients then had normal ear drums, I refuse to believe that they suffered from chronic Eustachian obstruction.

Nor, in my experience, does any middle ear, subjected to the baneful influences of chronic Eustachian obstruction, escape the consequences of inflammatory reaction, as ocular inspection reveals and clinical tests demonstrate. How such an operative procedure as described by Major Nesfield can possibly benefit patients suffering from otosclerosis, a disease of the labyrinthine segment of the ear, and where the Eustachian tube is as a rule somewhat dilated, I also fail to understand. All recognised authority is, and for long has been, against operative procedures in this particular type of deafness. It seems to me incredible that any child of the age of 4 years should require such drastic interference.—I am, Sir, yours faithfully,

Manchester, Jan. 10th, 1928. WILLIAM MILLIGAN.

To the Editor of THE LANCET.

SIR,—I agree with Major Nesfield's remarks in your last issue, where he points the distinction between the operation he advises for the alleviation of deafness in non-suppurative ear disease and that advocated by Mr. Charles Heath for aural suppuration: the latter's panegyric on his results is therefore out of place in this discussion. While Mr. Nesfield states that the best results are obtained by this operation where the deafness is due to blocking of the Eustachian tubes with indrawn ear-drums, he also mentions that he has operated on many cases of otosclerosis. The pathology of these two conditions is entirely distinct, and it is difficult to understand in what way opening the antrum can benefit otosclerosis. If progress is to be made with any method of treatment, it is essential that the various types of deafness be carefully differentiated beforehand. Dr. Hill's suggestion that Mr. Nesfield should endeavour to obtain the collaboration of an experienced otologist is a good one.

That Mr. Nesfield finds it difficult to keep open the communication between the antrum and the external auditory meatus is shown by the fact that, in the only three patients I have examined after he had operated, this was closed, not by a thin membrane, but by a thick layer of tissue, the only indication that an opening had been made being a slight depression on the posterior meatal wall.

I am, Sir, yours faithfully,

London, W., Jan. 6th, 1928. HAROLD BARWELL.

To the Editor of THE LANCET.

SIR,—Those whose views have got stabilised as the result of prolonged experience have to beware lest they get fossilised, and they do well to give a patient and, primarily, a favourable consideration to any new methods, however opposed they may seem, at first sight, to those already in vogue. The operative treatment described by Major Nesfield must, therefore, be studied with respectful consideration in the light of the results claimed. For these to have their full value it would be necessary to have a statement of the condition previous to the operation and after it, as well as the ultimate results, set out with the accuracy with which an ophthalmologist would report the data in cases of disease of the eye. There is no objection to the intrusion, if such it can be called, of an ophthalmologist into the domain of the aural surgeon, and indeed the delicate technique of the experienced oculist would stand him in very good stead in operating on the ear, but we would ask him for the details which an otologist, bringing forward a new operation, would be expected to place before his otological confrères.

The formation of a fistula in the bony back wall of the meatus is a proceeding which should not be lightly undertaken. It can only be called a new Eustachian tube in respect of admitting air into the tympanum, but it has none of the protective qualities of the true Eustachian tube, with its ciliated epithelium and its advanced guard, the nasal passages. There is further a chance of the immigration into the mastoid cavity of the epithelium of the skin of the meatus and the formation of a cholesteatoma with all its possibilities. Looking forward with interest to the publication of further particulars,

I am, Sir, yours faithfully,

London, Jan. 10th, 1928. JAMES DUNDAS-GRANT.

To the Editor of THE LANCET.

SIR,—I am astonished that the very interesting article by Major Nesfield has attracted so little attention. Now that a claim is made that by a simple routine operation these hopeless cases of chronic deafness can be cured, the claimant must not be surprised if he meets with blank incredulity, which can only be removed by the exhibition of patients or by the publishing of detailed figures "before and after." The recent book by Dr. Cathcart on the Electrophonoïde is a model in this respect, as a complete table of figures is given. My own experiments in this direction have not had the results claimed by Major Nesfield, but many attempts must have been made by others, and further information would be useful to those who think that the permanent ventilation of the middle ear either via tympanic membrane or antrum will ultimately solve the problem of chronic middle-ear deafness.

I am, Sir, yours faithfully,

Manchester, Jan. 9th, 1928. WILLIAM WILSON.

CONFERENCE ON SILICOSIS.—Mr. H. B. Butler, deputy director of the International Bureau at Geneva, in a recent address at Pretoria, said that there was reason to hope that a conference on silicosis would in the near future be held in Johannesburg. Supporting his proposal, Sir Spencer Lister, director of the South African Institute for Medical Research, said that in no place in the world was silicosis more prevalent than in Johannesburg, and nowhere was there so efficient an organisation for treating the disease.

Obituary.

ALEXANDER CAMERON MILLER, M.D., F.R.S. EDIN.

Alexander Cameron Miller, of Fort William, whose death occurred on the last day of the old year, was one of the most distinguished practitioners in Scotland; he was both a great rural doctor and a great public servant. Born at Fort William in 1861, he graduated M.B., C.M., at Edinburgh University in 1883, proceeding to the M.D. (with honours) in 1888. For over forty years he carried on practice from the centre in his native town over a large Highland area, where mountains and lochs were permanent obstacles to travel, while flooded rivers were more than occasional. He was poor-law medical officer for the parishes of Ardgour and Kilmallie, and for part of Kilmonivaig; the difficulties of the medical life with patients separated in glens by distances rising to 50 miles and more can be surmised even by those with no personal knowledge, and one of the most romantic documents in connexion with medical practice ever indited was Miller's account of how, to attend two isolated patients, he crossed the flooded river Spean in a bath—the only method of transit. He was also medical officer of health for Fort William and for the county district of Lochaber, and was from the foundation medical superintendent and surgeon of the Belford Hospital, an institution of some twenty beds. With a large private practice he was widely recognised as a consultant. On the public health and poor-law side he was well known for the reliability of his work to three central authorities in succession—the Board of Supervision, the Local Government Board for Scotland, which superseded that Board in 1894, and to the Scottish Board of Health, which in 1919 incorporated in one the Local Government Board and the Scottish Insurance Commission.

With the passage of the National Insurance Acts his work became even harder. In 1912 he was made a member of the departmental committee (the Dewar Committee) set up by Mr. Lloyd George to inquire into medical service, including nursing, in the Highlands and Islands, with Sir John Dewar, now Lord Forteviot, as chairman. The report of this body is one of the most important documents in Scottish medical history, and Miller impressed all the workers on it by his professional insight and range of his knowledge. His work on the Dewar Committee was of the highest value; for he had an unsurpassed knowledge of all the medical problems in the district, and the Board owed much to his sagacity at the discussions. The Scottish Board of Health appointed him to the Highlands and Islands Consultative Council, where his widely based judgments always carried weight.

He was a natural scholar, at home in Gaelic, and having travelled much on the continent knew two foreign languages well, while maintaining his interest in classical literature. He wrote, as might be expected, thoroughly well; his private letters were often long and brilliant, and to the Carnegie U.K. report on "Scottish Mothers and Children" he contributed a "regional study" that will remain one of the classical social accounts of a Scottish medical practice for a period of 30 years, for he showed system in his records and elegance in literary expression.

For his war services he earned prompt promotion to a lieutenant-colonelcy, and here again his genial qualities and intimate knowledge of men served him well. For it is not given to everyone, however kind and sympathetic, to identify himself in the way that Miller could with his humbler fellow-men. "Once, in Harris," an intimate friend of Miller writes to us, "I heard him in a weaver's 'black-house' sustain his part in a spinning song, the spinners and he responding to each other perfectly and with similar artistic feeling." Such men make good recruiting officers as well as good colonels and good doctors.

The funeral, which took place at Fort William on Jan. 4th, was one of the largest ever witnessed at Lochaber; the cortège extended the whole length of the street, and was made up of official representatives and social magnates, who mingled with farmers, crofters, and shepherds from distant glens assembled to do honour to a dead friend.

Medical News.

UNIVERSITY OF LONDON.—At recent examinations the following candidates were successful:—

M.D.

Branch I., Medicine.—Enid A. Ceiriog-Cadle, London Sch. of Med. for Women; Gwendolen C. Cotton, London Sch. of Med. for Women; William Evans, London Hosp.; Una C. Garvin, London Sch. of Med. for Women; Alice M. C. Macpherson, London Sch. of Med. for Women; Alan C. T. Perkins, King's College Hosp.; Evelyn N. Popper, London Sch. of Med. for Women; Thomas W. Preston, King's College Hosp.; William G. Sears, Guy's Hosp.; Harvie K. Snell, King's College Hosp.

Branch III., Psychological Medicine.—Isaac Atkin, St. Bart.'s Hosp.; Florence M. Gamble, London Sch. of Med. for Women.

Branch IV., Midwifery and Diseases of Women.—Richard A. Brews, London Hosp.; Dorothea A. C. Hunt, London Sch. of Med. for Women; R. G. Maliphant, University College Hosp.

University College.—A course of five public lectures by Dr. R. J. Ludford on Cytology in Relation to Physiological Processes will be given on Jan. 19th and 26th, and Feb. 2nd, 9th, and 16th, at 5.30 P.M.—A course of ten lectures on Comparative Physiology, to be given by Mr. C. F. A. Pantin, will begin to-day (Friday), Jan. 13th, at 5 P.M., and continue at the same hour on Fridays until March 16th.—Prof. A. V. Hill, F.R.S., will give six lectures on Muscle, at 4 P.M. on Wednesdays, from Jan. 18th to Feb. 22nd inclusive.

King's College.—At 5 P.M. on Tuesdays, from Jan. 17th to March 6th, inclusive, Mr. J. A. Hewitt, D.Sc., will lecture on Integration in the Nervous System.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following lectures have been arranged: Jan. 16th, 18th, 20th, 23rd, 25th, 27th, Prof. Sir Arthur Keith on Factors Concerned in the Growth of the Human Body; Jan. 30th, Mr. W. E. M. Wardill on Certain Aspects of Cleft Palate, with Observations on the Causes of Defective Speech and the Remedies proposed for their Treatment; Feb. 1st, Mr. H. S. Souttar on New Methods of Surgical Access to the Brain; Feb. 3rd, Mr. E. Miles Atkinson on the Pathology, Diagnosis, and Treatment of Abscess of the Brain; Feb. 6th, Sir Percy Sargent on the Surgery of the Posterior Cranial Fossa; Feb. 8th, Prof. G. Grey Turner on the Treatment of Congenital Defects of the Bladder and Urethra by implantation of the Ureters into the Bowel, with a record of 14 personal cases; Feb. 10th, Dr. J. H. Sheldon on an Undescribed Disease of Bone; Feb. 13th, Dr. Adolphe Abrahams on the Physiology of Violent Exercise in relation to the Possibility of Strain; Feb. 15th, Mr. Alexander Fleming on Lysozyme, a Bacteriolytic Ferment normally present in Tissues and Secretions; Feb. 17th, Miss Ida C. Mann on the Regional Differentiation of the Vertebrate Retina; Feb. 20th, Mr. C. E. Shattock on Pathological Specimens in the Museum; Feb. 22nd, Mr. C. P. G. Wakeley on Investigations into the Surgical Diseases of the Salivary Glands, including their Pathology and Treatment; Feb. 24th, Dr. W. D. Newcomb on the Relationship between Peptic Ulceration and Gastric Carcinoma.

BETHLEM ROYAL HOSPITAL.—A course of lectures and practical instruction for the Diploma in Psychological Medicine of various universities will be given at this hospital, beginning on Jan. 16th. Particulars may be had from the Physician-Superintendent.

LANCASTER ISOLATION HOSPITAL.—During the flood on the night of Oct. 28th last this hospital was partly submerged, and three sanatorium patients were drowned in their beds. Lancaster town council is now applying to the Ministry of Health for permission to erect a new isolation hospital on a better site, and it is hoped that the Lancashire County Council, Morecambe corporation, and the district councils of Carnforth and Lunesdale will contribute to the cost of a central scheme. It is proposed to include a block of buildings capable of accommodating 30 patients for use as a tuberculosis sanatorium by the county council.

ORDER OF ST. JOHN OF JERUSALEM.—Among recent appointments to the Order of the Hospital of St. John of Jerusalem are the following:—Commanders: Major-General John Taylor Fotheringham, Colonel Sir Edward Newbury Thornton, and Colonel Charles Pye Oliver. Officers: Dr. Wilfred Vincent Miller Koch, Mr. Harold Branson Butler, M.B.E., Sir John Atkins, and Dr. James Carter Ogilvie.

DONATIONS AND BEQUESTS.—Mr. John Whewell Simpson, of Fieldside, Keswick, Cumberland, late of Royton, Lancashire, has bequeathed £40,000 to the Manchester Royal Infirmary and £1000 each to Dr. Barnardo's Homes, and to St. Dunstan's Hostel for Blinded Sailors and Soldiers. The bequest to the Manchester Infirmary is the largest ever made to this institution.—Mr. Alfred Cockerill, of Abington, Northampton, left £1000 to Northampton General Hospital, as a "Cockerill Bequest" for or towards the upkeep of a bed there; £750 to the Manfield Orthopædic Hospital, and £500 to the Home for Incurables, Leamington.

BRITISH EMPIRE CANCER CAMPAIGN.—At a quarterly meeting of the Grand Council held on Jan. 10th it was announced that a trust fund had been created by the executors of the late Mr. William Johnston, of Liverpool, to be known as the Aileen Congreve Memorial Fund. Of more than £18,000 available £16,000 will become a permanent trust, whose interest will be used for cancer research in Liverpool. It was also stated that an anonymous donation of £10,000 had been received by the campaign, and that the interest on this would be available for general research work. The sum of £3000 was granted for maintenance of the cancer research laboratories of the Middlesex Hospital, and a further sum of £900 for the year's maintenance of the special radiological research department there. A grant of £600 to the Cancer Research Committee of the London Association of the Medical Women's Federation was renewed for the ensuing year. An announcement was made about the International Convention on Cancer Research to be held in London in July. Particulars of this will be found in an editorial column.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday, Jan. 16th, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, Sir James Purves-Stewart will lecture on Acute Drunkenness. On Thursday, Jan. 19th, at 3 P.M., at the Royal Eye Hospital, St. George's-circus, Mr. Letchworth will give a clinical demonstration. The lecture and the demonstration are open to members of the medical profession without fee. The following week there will be a lecture and surgical, medical, and ophthalmic demonstrations. A special course in cardiology will be given at the National Hospital for Diseases of the Heart, Westmoreland-street, commencing on Monday, Jan. 16th, for a fortnight, from 10 A.M. to 4 P.M (entries limited to 20). A course of eight lecture-demonstrations on Psychological Medicine will be given at the Bethlem Royal Hospital, on Tuesdays and Saturdays, at 11 A.M., commencing on Jan. 17th. During February, for a fortnight, a whole-day course in Diseases of Children will be held at the Paddington Green Children's Hospital and the Victoria Hospital for Children; during the afternoons and evenings, for four weeks, a course in Venereal Diseases will be held at the London Lock Hospital. A course in dermatology will be held every afternoon from Jan. 30th to Feb. 25th, at the St. John's Hospital (practical pathological demonstrations can also be arranged). From Feb. 20th to March 3rd, at the Queen Mary's Hospital, Stratford, a whole-day course will be given in medicine, surgery, and the specialties, consisting of work in the various departments of the hospital. From Jan. 30th to March 23rd, at the National Hospital, Queen-square, a course in Neurology will be given, consisting of clinical and pathological lectures and demonstrations, teaching in the out-patient department, lectures on the anatomy and physiology of the nervous system, and demonstrations on methods of clinical diagnosis in diseases of the nervous system. Information, syllabuses, tickets, and copies of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship, at 1, Wimpole-street, W.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2 2 0
	Six Months	1 1 0
	Three Months	0 10 6
ABROAD	One Year	2 10 0
	Six Months	1 5 0
	Three Months	0 12 6

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Albemarle-street, W.

THURSDAY, Jan. 19th.—4.30 P.M. *The following papers, among others, will be read:* P.H.H. Gray: Formation of Indigotin from Indol by Soil Bacteria. (Communicated by Sir John Russell.) R. A. Fisher: Triplet Children in Great Britain and Ireland. (Communicated by Sir Arthur Keith.) *The following papers will be read in title only:* J. Piiper: On the Evolution of the Vertebral Column in Birds illustrated by its Development in Struthio and Larus. (Communicated by E. W. MacBride.) F. G. Gregory and A. S. Horne: A Quantitative Study of the Course of Fungal Invasion of the Apple Fruit and its Bearing on the Nature of Disease Resistance. Parts I. and II., and the Differential Effect of the Ions of Three-salt Solutions on the Growth of Potato Plants in Sand Culture. (Communicated by V. H. Blackman.) Sir Kenneth Goadby: Bacterial Proteins. L. Rapkine and R. Wurmser: On Intracellular Oxidation-Reduction Potential. (Communicated by Sir F. Hopkins.) F. W. R. Brambell: Development and Morphology of the Gonads of the Mouse. Part II. (Communicated by J. P. Hill.) R. C. Punnett: Linkage Groups and Chromosome number in *Lathyrus*.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Jan. 16th.—LIBRARY: The main library will close at 5 P.M., but readers will be accommodated in other rooms until 6.30 P.M. 8.30 P.M., SOCIAL EVENING. From 8.30 to 9 P.M. Fellows and guests will be received in the Library by the President and Lady Berry. At 9.15 P.M. Dr. Jane Walker will give an address entitled Saints, Medicine, and Surgery (with illustrations). A number of exhibits, kindly lent by the Wellcome Historical Medical Museum and by Miss Marie Leon will be on view. Music and light refreshments.

TUESDAY.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship. 8.30 P.M., PATHOLOGY. Papers, &c.: Prof. J. McIntosh: The Histology of Some Virus Infections of the Central Nervous System. Mr. A. Fleming: The Influence of Temperature on the Agglutination of Bacteria. Dr. F. T. Ridley: A New Mixing Machine.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) 8 P.M., OBSTETRICS. Specimen: Mr. W. Gilliatt: Sarcoma of the Uterus. Short Communication: Prof. J. B. Cleland (University of Adelaide): Difficult Labour in a Pure-blooded Australian Aboriginal Woman. Paper: Mr. G. F. Gibberd: A Consideration of the Results of Albuminuria Occurring during Pregnancy with Special Reference to the Relationship between Pregnancy, Kidney, and Chronic Nephritis. 8.30 P.M., ELECTRO-THERAPEUTICS. Discussion on Diathermy in Relation to Circulatory Disturbances, Particularly in High Blood Pressure, &c. Openers: Prof. Sidney Russ and Dr. T. F. Cotton. Dr. Justina Wilson, Dr. Agnes Savill, and others will also speak.

HUNTERIAN SOCIETY.

MONDAY, Jan. 16th.—9 P.M. (at the Mansion House). Dr. Howard Kelly of Baltimore, U.S.A.: Rubbing and Reasoning.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Jan. 19th.—8.15 P.M., preceded at 7.45 P.M. by a demonstration, Surgeon-Commander D. H. C. Given, R.N.: Health Organisation on H.M. Naval Base, Singapore, and Results, with comments on the Practice of Preventive Medicine seen during Tours in the Far East (illustrated by lantern slides).

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Upper Montague-street, Russell-square, W.

FRIDAY, Jan. 20th.—5 P.M., Dr. Walter Elliot, M.P., and Prof. R. H. A. Plimmer, D.Sc., on Recent Advances in the Knowledge of Food.

EUGENICS SOCIETY.

THURSDAY, Jan. 19th.—8.30 P.M. (at the Rooms of the Royal Society, Burlington House, W.). Mr. F. C. Bartlett: Innate Qualities in Social Classes. Discussion.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.

FRIDAY, Jan. 20th.—3 P.M. (at 122, Harley-street, London, W.), annual general meeting. Discussion on Pros and Cons of Tuberculosis Propaganda, to be opened by Dr. W. Brand.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Jan. 16th, to SATURDAY, Jan. 21st.—FELLOWSHIP OF MEDICINE. Lecture at Medical Society, 11, Chandos-street, Cavendish-square, W. Mon., at 5 P.M., Sir James Purves-Stewart, K.C.M.G.: Acute Drunkenness.—ROYAL EYE HOSPITAL, St. George's Circus, S.E. Clinical demonstration on Thurs., at 3 P.M., by Mr. Letchworth. The above lecture and demonstration are open to members of the medical profession, without

fee.—BETHLEM ROYAL HOSPITAL, St. George's Fields, S.E. Course in Psychological Medicine. Lecture-demonstrations on Tues. and Sat. at 11 A.M.—CHILDREN'S CLINIC and other hospitals. Post-graduate course in Diseases of Children, occupying mornings and some afternoons. (Second week.)

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, W.
MONDAY, Jan. 16th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Trevor Davies: Gynæcological Department. 4.30 P.M., Dr. Carmichael Low: Sprue (lecture).
TUESDAY.—2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients.
WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department.
FRIDAY.—10 A.M., Dr. Pritchard: Special Medical Treatment Clinic. 2 P.M., Mr. Vlasto: Throat, Nose and Ear Department. 4.30 P.M., Dr. Archer: Chemical Examination of Blood (lecture-demonstration).
SATURDAY.—10 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Owen: Medical Diseases of Children.
Medical and Surgical Out-patients, Operations, Special Departments, daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

NORTH-EAST LONDON POST-GRADUATE COLLEGE Prince of Wales's General Hospital, Tottenham.
MONDAY, Jan. 16th.—2.30 to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 to 5 P.M., Medical, Surgical, Throat, Nose and Ear Clinics. Operations.
WEDNESDAY.—2.30 to 5 P.M., Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M., Dental Clinics. 2.30 to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose and Ear Clinics. 2.30 to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Jan. 17th.—5 P.M., Dr. H. G. Adamson: Erythema Multiforme.
THURSDAY.—5 P.M., Pathology Demonstration.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Grays' Inn-road, W.C.
MONDAY, Jan. 16th.—1.30 P.M., Mr. R. J. Cann: Hearing Tests.
WEDNESDAY.—1.30 P.M., Mr. N. MacKeith: Examination of the Ear.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, Jan. 17th.—3.15 P.M., Sir William Willcox: The Clinical Manifestations of Parenteric Infections.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Jan. 19th.—4 P.M., Dr. D. Paterson: Digestive Disturbances in Infancy and Their Treatment.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Jan. 18th.—4.30 P.M., Mr. Rowland Burrows: The Medical Practitioner in Relation to the Administration of Justice.

ST. MARY'S HOSPITALS, MANCHESTER, Whitworth-street West Branch.
FRIDAY, Jan. 20th.—4.30 P.M., Dr. F. H. Lacey: Abortion: Its Prevention and Treatment.

Appointments.

ROBB, J. J., M.B., Ch.B. Edin., F.R.C.S.Edin., has been appointed Surgeon Consultant, Gilbert Bain Hospital, Lerwick.

TIPPETT, G. O., M.B., B.S. Lond., M.R.C.S., Resident Surgical Officer, Wingfield Orthopædic Hospital, Oxford.

Westminster Hospital: SEGAL, S., L.R.C.P. Lond., M.R.C.S., Resident House Physician; ROBOTTOM, P. M., L.R.C.P. Lond., M.R.C.S., and SOUTTER, P. A. M., L.R.C.P. Lond., M.R.C.S., Resident House Surgeons.

Certifying Surgeons under the Factory and Workshop Acts: EDWARDS, L. C. J., L.R.C.P. Lond., M.R.C.S. (Braintree); OLIVER, C. P., Jun., M.B., B.Chir. Camb. (Maidstone); DAVIES, R. W., L.R.C.P. Lond., M.R.C.S. (Rushden); and WARNER, C. H., M.D., B.S. Lond., D.P.H. (Southwell, Notts.).

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital.—Two Hon. S.'s for Out-patients. Also Hon. Asst. Ophth. S.
Bethnal Green Hospital, E.—Asst. M.O. £350.
Birmingham City.—Sen. Asst. M.O.H. £1100.
Blyth, Borough of.—M.O.H., &c. £800.
Brighton, New Sussex Hospital for Women and Children, Windlesham-road.—Hon. Radiologist and Hon. Surg. to Ear, Nose and Throat Dept.
Bristol Royal Hospital for Sick Children and Women.—H.P. £125.
Central London Ophthalmic Hospital, Judd-street, W.C.—Two Out-patient Officers. Each £150. Also Jun. H.S. At rate of £50.
City of London Hospital for Diseases of the Heart, Victoria Park E.—P. to Out-patients.
Colchester, Essex County Hospital.—H.S. £150–£200.
Coventry, City of.—Deputy M.O. £750.
Croydon County Borough.—Asst. M.O.H., &c. £600.
Durham, Earl's House Sanatorium for Boys.—M.O. £450.
Evelina Hospital for Children, Southwark, S.E.—H.P. £120.
Freemasons' Hospital and Nursing Home, 237, Fulham-road, S.W.—Res. M.O. At rate of £250.
Hospital for Tropical Diseases, Endsleigh-gardens, W.C.—Hon. Asst. P.
Liverpool, Royal Children's Hospital, Heswall Branch.—Res. M.O. At rate of £120.
Liverpool, Royal Children's Hospital, City Branch, Myrtle-street.—Two Res. H.P.'s and two Res. H.S.'s. Each at rate of £60.
London Female Lock Hospital, 283, Harrow-road, W.—2nd H.S. At rate of £150.
London School of Hygiene and Tropical Medicine.—University Chair of Public Health. £1300.
Manchester, Ancoats Hospital.—Res. M.O. £150.
Manchester, Ministry of Pensions Hospital, Grangethorpe.—Jun. M.O. £300.
Manchester Royal Infirmary.—Asst. M.O. £35.
Margaret-street Hospital for Consumption, 26, Margaret-street, W.—Hon. Urological S.
Margate, Royal Sea Bathing Hospital for Surgical Tuberculosis.—Two H.S.'s. Each at rate of £200.
Metropolitan Hospital, Kingsland-road, E.—Ophth. S.
Midlothian, West Lothian and Peebles Counties.—M.O.H. £900.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Jun. Res. M.O. £100.
Norwich City.—Clinical Tuberculosis Officer, &c. £750.
Nottingham Children's Hospital.—Res. H.S. At rate of £150.
Oxford, Radcliffe Infirmary and County Hospital.—Hon. Asst. Orthopædic Surg.
Oxford, Wingfield Orthopædic Hospital, Headington.—Asst.S. £600.
Peckham House Mental Hospital, 112, Peckham-road, S.E.—Jun. Asst M.O. £250.
Portsmouth City Mental Hospital.—2nd Asst. M.O. £525.
Portsmouth Royal Hospital.—Cas. O. At rate of £100.
Portsmouth, St. Mary's Infirmary Institution and Children's Home.—3rd Asst. Res. M.O. £250.
Preston, Royal Infirmary.—H.S. £150.
Royal Army Medical Corps.—Commissions.
Royal Naval Medical Service.—Twenty Commissions.
Royal Society, Burlington House, W.—Second Foulerton Research Professor. £1400.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Non-res. Cas. O. £150.
St. Albans, Hill End Mental Hospital.—2nd Asst. M.O. £450.
St. John's Hospital, Lewisham, S.E.—Cas. O. At rate of £100.
Salford, City of.—Venereal Disease M.O. £750.
Sheffield Royal Hospital.—Res. Anæsthetist. At rate of £80.
Stepney Parish.—Pathologist and Bacteriologist. £450.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. £150.
Taunton and Somerset Hospital.—Sen. and Jun. House M.O.'s. At rate of £150 and £100 respectively.
Wakefield City Public Health Dept.—Asst. M.O. £600.
Wellcome Bureau of Scientific Research, 26, Endsleigh-gardens, W.C.—Asst. Bacteriologist.
West End Hospital for Nervous Diseases, Gloucester Gate, Regent's Park, N.W.—Sen. H.P. At rate of £150.
Willesden Urban District Council.—Asst. M.O. £600.

The Secretary of State for the Home Department announces a vacancy for an additional Medical Referee under the Workmen's Compensation Act, for the districts of the Bath, Calne, Chippenham, Devizes, Frome, Hungerford, Malmesbury, Marlborough, Melksham, Newbury, Swindon, Trowbridge and Warminster County Courts. Applications should reach the Private Secretary, Home Office, not later than Jan. 31st.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Kilwinning (Ayrshire) and Kirkby Lonsdale (Westmorland).

Births, Marriages, and Deaths.

BIRTHS.

BUTLER.—On Jan. 3rd, the wife of Dr. M. F. Butler, High-street, Penge, of a daughter.

GILBERTSON.—On Dec. 31st, 1927, at Bancroft, Hitchin, Herts, the wife of Dr. H. Marshall Gilbertson, of a daughter.

LANE.—On Jan. 1st, at Malta, the wife of Major J. W. Lane, R.A.M.C., of a son.

ROBINSON.—On Dec. 24th, 1927, at a nursing home, Salisbury, the wife of Major T. T. H. Robinson, D.S.O., R.A.M.C., of a son.

WEBSTER.—At 1, Carden-terrace, Aberdeen, on New Year's Day, 1928, to Grace, wife of A. U. Webster, M.C., M.A., M.B., Fraserburgh—a son.

DEATHS.

HODGKINSON.—On Jan. 6th, at Bradshaigh, Farnham, Surrey, Dr. Alexander Hodgkinson, formerly of Wilmslow, Cheshire.

MAHER.—On Jan. 7th, after an operation, Major-General Sir James Mayer, K.C.M.G., C.B., late R.A.M.C., of "Moorings," Boundary-road, Worthing.

STURGES.—On Nov. 12th, at Ballarat, Australia, Frank Sturges, L.R.C.P., formerly of Beckenham, aged 66.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

RECIPES FOR LIVER DIET.

THE thought of consuming large quantities of liver, as prescribed in the Minot-Murphy diet for anæmia, does not by any means commend itself to the average patient. There are, however, various ways in which it may be served without seeming monotonous or unappetising. The *Journal of the American Medical Association* on Oct. 15th published a series of recipes for cooking liver taken from French and English sources, of which we quote the following as offering perhaps the most tasty dish:—

Ingredients.—1 lb. of calf's liver; 3 tablespoonsful of grated bread crumbs; 4 large mushrooms, chopped; 2 sprigs of parsley finely chopped; 1 medium-sized onion finely chopped; ½ teaspoonful of salt and a pinch of pepper. *Method.*—Cut the liver into slices ½ inch thick, and sprinkle each slice with the mixture of bread crumbs, mushrooms, and seasonings; put in a casserole, pour over it ½ pint of cold water or good soup stock, and bake in a slow oven for three-quarters of an hour.

Further suggestions may be found in a booklet by Florence Irwin. (Belfast: Printed by the Northern Whig, Ltd., Bridge-street. Pp. 12. Price 1s., or 1s. 1½*d.* post free.) In the Minot-Murphy dietary she says mammalian liver is recommended, but chicken's liver and lamb's kidney may be substituted for a change; rabbit's liver should prove milder in flavour than that of pig, sheep, or ox, but pig's liver is also mild. The liver, which must be very fresh, should neither be soaked in lukewarm water and salt nor parboiled before cooking as some authorities recommend, but should merely be wiped with a damp cloth. Simplicity in preparation is generally desirable, the less the liver being cooked the better; for this reason grilled liver and raw liver sandwiches are recommended, and in the worst stages of the disease raw liver juice is prescribed. Recipes for serving the food in all these different ways and for preparing liver tea are given in the booklet. Soups may be made in a variety of ways, the variation being obtained chiefly by changing the vegetables and ingredients with which the liver is cooked. Some rather more elaborate dishes have been included among the recipes for the sake of variety, the section devoted to casserole cookery containing some of the most palatable. This method of cooking liver should prove useful as none of the "goodness" is lost, and the patient should consume all the sauce and gravy in this and other preparations as they contain much of the liver juice. The following are two of the recipes given in the booklet, the first for raw liver sandwiches, the second for curried liver:—

1. *Ingredients.*—Brown bread and butter; lettuce, or tomato, or mustard and cress; mustard, pepper, salt; 6 oz. liver purée (¼ lb. liver). *Method.*—Pass the liver twice through the mincer and rub through a wire sieve. Weigh after sieving. Season it lightly with made mustard, pepper, and salt. Cut some thin brown bread and butter, spread it thickly with the liver, sprinkle some tomato, lettuce, or cress with a drop or two of vinegar, cover the liver with this, and place a piece of bread and butter on top to form the sandwich. Press, and cut neatly. Serve as directed by the doctor. *Note.*—The bread may first be spread with anchovy paste or "gentleman's relish."

2. *Ingredients.*—8 oz. liver; 1 teaspoonful curry powder; 1 teaspoonful flour; 1 teaspoonful good chutney, 2 teacupsful stock; slice of apple, or ½ stick of rhubarb; ½ teaspoonful lemon juice; salt. *Method.*—Start by making the sauce. No fat being allowed in this diet, the method differs somewhat from ordinary cookery books directions for curry sauce. Peel, scald, and chop the onion. Chop the apple or rhubarb. Blend the flour and curry powder in a little of the stock. Put the rest of the stock on to boil, add the onion, apple, rhubarb, and chutney, and cook till the onion is tender. Stir the flour, &c., and simmer 2 minutes longer. Meanwhile cut the liver in small pieces as for any other curry. Add to the curry sauce, and simmer for 15 minutes or till the liver is tender. Add the lemon juice and serve with a little plain boiled rice.

The booklet also contains a copy of Minot's diet for Addisonian anæmia, instructions for taking dilute hydrochloric acid (A. F. Hurst), and other information which many practitioners will find useful.

EARLY MEDICINE IN MARYLAND.

WE have received from the President of the Medical and Chirurgical Faculty of Maryland an address delivered by Dr. Thomas S. Cullen at the Faculty Buildings in Baltimore. It is an interesting record of the development of medical science from the time when a charter for the Province was granted in 1632 to Cæcilius Calvert, second Lord Baltimore by Charles the First. Dr. Cullen quotes largely from the Medical Annals of Baltimore, written by Dr. John R. Quinan and dealing with the medical history of the State from 1608 to 1880, the earlier date being that when a certain John Smith set out from Jamestown in an open barge of 3 tons burden, manned by a crew of 13, hoping to find a westward passage into the Pacific Ocean. This work was brought up to date some 25 years ago by Dr. Eugene Cordell, who took note of the medical happenings in Maryland up to 1899, and Dr. Cullen points out that the time has now arrived for adding a further supplement to the volume. To this end he appeals for an organised effort to gather material, and urges members of the Faculty of Maryland to file away everything of special interest, especially obituary notices and pictures, which they may come across, and to send such records to the library of the Faculty as they accumulate. It would be of great historic interest if similar measures were taken in other of the older American States. There are many records of the earlier times, but apparently no steady effort is made to bring them up to date.

BIRTH CONTROL CLINICS.

REFERRING to the annotation on birth control centres in THE LANCET of Dec. 31st, 1927 (p. 1400), Dr. Norman Haire calls our attention to the Cromer Welfare and Sunlight Centre which has recently been established at 59, Cromer-street, Gray's Inn-road, London, W.C. This is a voluntary welfare centre, with departments for antenatal and postnatal advice, and in addition there is a sunlight department in which expectant and nursing mothers and their children are treated with artificial sunlight. At this Centre any women whose health renders it desirable that they should temporarily or permanently avoid pregnancy are given birth control advice by one of the medical officers. Since extreme poverty may lead to, or aggravate, ill-health, unfavourable economic circumstances are sometimes regarded as sufficient grounds for giving the advice, but it is not a policy of this Centre to advise women not to have children except where there is some definite indication that abstention from parenthood is, at any rate for a time, advisable.

The Centre has not applied for, and does not receive, financial help from public authorities, and is at present supported by a philanthropic gentleman; all the medical officers give their services without payment. The Centre is only intended for poor people, and will not receive as patients those who can afford to pay a private practitioner. Visits from medical practitioners who are interested are welcomed. The telephone number of the secretary is Museum 7889.

"PRESCRIPTION PAD."

IN response to a letter from Dr. E. L. Hopewell-Ash, which appeared in our columns on Dec. 10th last, Messrs. Schering, Ltd., of 3, Lloyd's-avenue, London, have sent us a specimen of a prescription pad for employment with their Medinal cachets, which are made up to contain either grs. 5 or 10 of the drug. The cachets are contained in small boxes on which the strength is marked outside, the forms of which the prescription pad are composed suggest the larger or smaller dose according to the practitioner's discretion. It is indicated on the form that 12 cachets only have been ordered and that the prescription is *not to be repeated*. The general action of barbitone derivatives is well known, and the object of the proprietors of Medinal is to preclude the possibility of a patient being able to obtain the medicament in any other way than through the medical practitioner.

THE SICK RABBIT AND THE HUNTER.

THE Treasury Department of the United States has issued a timely warning[1] against too close contact with the sick rabbit in the parts of the United States where tularæmia is prevalent. The great reservoir of this tiresome and extremely infectious disease is the wild rabbit, whether of the jack, cotton-tail, or snowshoe variety, and the infection is generally conveyed to man in the spring time indirectly through the tick and in the summer time through the fly. Just now it is the dressing of the dead wild rabbit from which infection is to be feared. Rabbit meat, thoroughly cooked, is harmless for food, and if rubber gloves are worn by those who dress wild rabbits, the personal risk is much diminished, although the employment of immune persons as rabbit dressers is advised where possible, for even the scrupulous technique of trained bacteriologists can hardly prevent dissemination and the Lister Institute some time ago gave up the attempt to maintain the *Bacterium tularense* in the collection of type cultures. Finally, says the U.S. Treasury Department, beware of the wild rabbit which the dog or cat has caught or which a boy has killed with a club, for it is probably a sick rabbit. The hunter should not shoot his rabbits at the point of his gun; let him be a sportsman and shoot them on the run at 75 yards, when the rabbits bagged will not be sick with tularæmia. Risk, it appears, is only incurred by the type of sportsman who returned triumphant from the desert with the carcass of an old lion which he had found strolling wearily about with a green shade over its eyes.

[1] Public Health Reports, Dec. 2nd, 1927.

A YEAR'S WORK AT LIVINGSTONE COLLEGE.

Livingstone College, Leyton, incorporated in 1900, was founded to teach would-be foreign missionaries how to care for their own health and the health of their colleagues, and how to deal with the everyday diseases of the people of the country in which they are to work, when living far removed from qualified medical aid. The College admits men and women of all nationalities and religious denominations, both missionaries going out for the first time and those on furlough. The full course of training covers one academic year and the College now numbers on its roll of past students nearly 1000 missionaries working in all parts of the world. The past year has seen the largest entry since the College was started. During the year 100 students from seven countries, and representing 28 missionary societies, have received practical and theoretical training on the care of health and in the treatment of tropical diseases, which an intelligent trained layman can be expected to carry out. The annual report for 1926–27 shows a record of good work, and emphasises the fact that a little knowledge is by no means necessarily a dangerous thing; if rightly used "a little knowledge grows by using it."

THE WICKER BUGTRAP.

SOME interesting remarks in THE LANCET of July 16th last year on the prevalence of bed bugs in this country a hundred years ago suggest how much we owe to sanitary legislation and the inculcation of cleanliness. Reference was made in the note to the "Bug Catcher to his Majesty," who before 1837 held a Royal Warrant for this purpose, and *Cimex lectularius* held sway at any rate as late as 50 years ago, at which date there existed a well-known hotel in London which by commercial travellers, who used it, was generally referred to as "buggy." So prevalent were these parasites, at any rate in the earlier years of the nineteenth century, that basket traps were made to catch them, advantage being taken of their habit of retiring for rest and digestion after their bloodthirsty debauch. These baskets were made of wicker and placed behind the bolster across the bed, as we are reminded in a note in the current issue of *Man* which is published under the direction of the Royal Anthropological Institute of Great Britain and Ireland. Illustrations are here given of a bug trap, similar to those used in the early 'sixties as part of the domestic furniture of middle-class households, which has been placed among the archæological exhibits in the museum at Cambridge. Although superior households tried to protect themselves against the pests, whom a judge has classified as "dangerous insects capable of causing assessable injury," among the common people they were regarded biologically as related to symbiosis rather than to parasitism—they argued the existence of a beneficent Creator who for poor folk provided a substitute for the periodical bleeding deemed necessary to health by their richer neighbours.

INFECTIOUS DISEASES AND ASEPTIC NURSING TECHNIQUE.

OUR knowledge of the means by which infectious diseases are spread is still indefinite, yet, by keeping within certain limits and observing certain rules, their incidence can be reduced. If this object is to be attained the primary need is that the physician in charge of the infectious case must know all the possible leakages of infection and how to stop them. But he only sees his patient for a few minutes each day, whereas the nurse is never absent and is, moreover, in contact with the other inmates of the hospital or private house. In all small matters she is responsible for the technique which prevents transmission to others, and although she receives her instructions from the doctor, she cannot do her part well unless she herself thoroughly understands the principles on which she is relying. Dr. Richardson, in the preface of his recent book, "Infectious Diseases and Aseptic Nursing Technique,"[1] points out that the ordinary text-book written for the physician is too elaborate for nurses, and he has tried to write a simpler book. In the first part, after a brief discussion of the principles of infection and immunity, he describes all the diseases which are infectious. The particular signs, symptoms, complications, and treatment of each are given and the means by which they are transmitted. This is followed by a very useful chapter on the nursing of infectious diseases at home, in which isolation, the treatment of contaminated dishes and clothing, the disposal of excreta and refuse, and discharge from isolation are discussed. The second part of the book deals with technique in hospital.

Dr. Richardson explains that here it is specially difficult to prevent the spread of infection, because the causative organisms are most virulent while secretions and excretions are in a fresh state. Organisms usually enter the body through the mouth or nose, the infection being most often conveyed by contaminated hands or by direct contact. A hospital may be usefully divided into "units." A "unit" is an infected area which includes the patients in any room or ward who have the same disease. It includes the furniture in the room, clothes, and all instruments and applications used by patients in the unit. Indirect contact between units is prevented by employing a technique similar to that used by surgeons when operating. This Dr. Richardson describes as medical asepsis. He then explains how this may be attained in a hospital and the application of its principles in hospital administration. Finally he describes the best methods of disinfection. The book is simply and clearly written and will be appreciated not only by nurses, but by students doing "fevers" and by practitioners.

[1] By D. L. Richardson, M.D., Superintendent of Providence City Hospital, Providence, R.I. London: W. B. Saunders Company. Pp. 182. 7s. 6d.

POISONING BY TETRACHLORETHANE.

TETRACHLORETHANE is known to be a powerful narcotic acting on the central nervous system and its inhalation in the form of aeroplane dope gave rise to some of the cases of toxic jaundice among munition workers during the war; but instances of direct poisoning are rare, and interest attaches to a case reported by Major R. A. Hepple, R.A.M.C., in the *Journal* of the Corps for December, 1927. The patient, aged 21, was unconscious all the 20 hours he survived; coma was almost the only symptom. His stomach was washed out, but the heavy tetrachlorethane was not all evacuated. Respiration gradually failed, and the temperature, which at first measured 96·2° F., became 104·2° F. just before death. At the post-mortem examination small erosions were seen in the œsophagus, stomach, and small intestines; cloudy swelling and congestion of the liver and kidneys, congestion of both pulmonary bases. The thymus weighed ¼ oz. The stomach contained about 6 oz. of fluid, from which 12 c.cm. of tetrachlorethane was recovered by distillation. A single cubic centimetre given to a healthy rabbit rendered it comatose in ten minutes.

NEW PREPARATIONS.

FROM the Clayton Aniline Company, 40, Southwark-street, London, S.E., we have received a specimen of *Prokliman*, manufactured by the Society of Chemical Industry in Basle. It is an ovarian hormone compound designed to combat climacteric manifestations. It has received high praise in well-known German general and special medical journals, and Dr. Walter Braun, among others, writing in the *Zentralblatt für Gynakologie*, details the good results obtained by treating both women whose ovaries had been removed before the menopause and women whose climacteric had occurred in the usual way. The preparation has been added to the list of "Ciba" brand pharmaceutical specialities.

Concentrated Fluid Extract of Liver. For this preparation, which emanates from the Armour Laboratories in Chicago, and is distributed from Queen's House, Kingsway, W.C., it is stated that in each ounce of the extract 8 ounces of fresh and specially selected material is represented. The product is prepared from fresh calf liver, the manufacture of the alcoholic extract taking place whilst the liver still retains natural heat. Recent research has shown the value of liver preparations in certain deficiency disorders, and we may refer here to the paper which appeared in our columns[1] last November by Dr. John Anderson and Dr. E. I. Spriggs on the Minot-Murphy liver diet in Addisonian anæmia. The value of liver diet in sprue is illustrated in the same issue by Dr. Carmichael Low and Mr. W. E. Cooke.

We have received from Messrs. Coates and Cooper, 41, Great Tower-street, London, E.C., two preparations from the laboratory of Messrs. Reed and Carnrick, of Jersey City, N.J., for whom they act as distributing agents: (1) *Protonuclein*, (2) *Pancrobilin Pills*. The preparations are designed to meet glandular insufficiency as revealed by recent work on the inter-relations of the natural secretions. The claims by the manufacturers, which accompany the samples, are very large and obviously require endorsement from the records and notebooks of practitioners whose verdicts result from actual experience in practice.

Messrs. Roberts and Co., of 76, New Bond-street, London, W., have sent us *Elixir Sedoval* which is a bromide salt of strontium combined with an extract of valerian; the objectionable odour of the latter has been eliminated so that the association of the two products is free from disagreeable odour or taste. A tablespoonful of Sedoval contains grs. 6 of strontium bromide and 12 minims of extract of valerian. The sedative action represented by its make-up is obtained in nervous manifestations, in various forms of hysteria and in insomnia, if such a dose be taken two or three times a day, varied in accordance with the directions of the physician.

[1] THE LANCET, 1927, ii., 958.